A STUDY ON NEERKKURI NEIKKURI
DIAGNOSTIC METHODOLOGY
IN KALLADAIPPU – RENAL CALCULI”

(DISSEYATION SUBJECT)

For the partial fulfilment of the requirement to the Degree of

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INTRODUCTION

Siddha system of medicine is a treasure dedicated to the world by siddhars. As per Theraiyar, the eight methods of the diagnosis “Envagai thervu” are Naadi(pulse), Naa(tongue), Niram(colour), Mozhi(voice), Vizhi(eyes), Malam(faeces), Neer(urine), and Sparism(touch).

Among the eight diagnostic tools, urine is one of the important. In urine the diagnostic modes are Neerkkuri and Neikkuri.

The methodology of diagnosing the diseases in our system is based on ‘En vagai thervu’

The system has worked out detailed procedure of urine examination which includes study of its colour, smell, density, quantity, and oil drop spreading pattern. It is a holistic approach and the diagnosis involves the study of a person as a whole and his disease as well.

This unique methodology “Neikkuri” defined as ‘Nei’ in Tamil means oil or gingely oil to be more precise. ‘Kuri’ refers to sign. The procedure and various patterns in Neikkuri are illustrated in the text of Theran, a Siddhar who excelled in expounding urine examination procedures.

Neikkuri is dropping sesame oil drop onto the mid stream urine sample surface collected in a crystal/glass bowl during early morning. The mode of spreading nature of oil indicates the prognosis and diagnosis of diseases.

Siddhars classified the diseases into 4448 and described each one separately and elaborately. They classified the diseases on the basis of vatha, pitha and kapha humours.

As per Agathiyar rathna churukka naadi, kalladaippu is classified into 80.

“அகதியர் ரத்நாசுர்க்கா கல்லதைப்பு”
-அகதியர் ரத்நாசுர்க்கா காஞ் காஞ்மை.
The disease kalladaippu is placed under Neerinai arukkal noi (Oligurial diseases). This has been mentioned by Therayar in his “Theran karisal” as follows:

“இயே ரீகேரா கண்கால கீர்முக வர்காமாரை
இயே ரீகேரா கண்காலா கீர்முக பாசகசர்காராம
இயே ரீகேரா கண்காலா கீர்முக விளங்காயாராம

-திருக்கணா கீர்க்கா.

As per Yugi vaithiya sindhamani kalladaippu is classified into 4 types.

“சாங்கி தங்கி கஞ்சி தங்கி கஞ்சி கஞ்சி
சாங்கி தங்கி கஞ்சி கஞ்சி

-புரிய கஞ்சி கிளித்தாங்கா.

According to siddha pathology, Kalladaippu is caused due to derangement of pitha humour.

Kalladaippu or Renal calculus is one of the most painful common urologic disorders of the present society. Life style modification plays a key role in the genesis of Renal calculus.

Each year, people make almost 3 million visits to health care providers and more than half a million people go to emergency rooms for kidney stone problems. It is estimated that at least 10% of the population in the industrialized part of the world is afflicted by urinary tract stone disease.

Kidney stones are common in industrialized nations with an annual incidence of 0.5% to 1.9%. In India, the incidence of renal calculi is comparatively low in the southern part of country compared to other parts.
2. AIM AND OBJECTIVES

AIM:

To develop the Neikkuri examination in siddha system to be a cost effective, yet powerful tool diagnostics.

OBJECTIVES:

PRIMARY OBJECTIVE:

To document the diagnostic patterns of Neikkuri in Kalladaippu - Renal calculi.

SECONDARY OBJECTIVE:

To observe for any significant Neikkuri pattern which may provide a clue in the diagnosis, prognosis or its complications.
3. REVIEW OF LITERATURE- SIDDHA

A. SIDDHA PHYSIOLOGY

3. A.1. SUGARANA NILAI (PHYSIOLOGICAL STATE) IN SIDDHA MEDICINE

The five basic elements, namely Aagayam (Space), Kaal (Air), Thee (Fire), Neer (Water), and Mann (Earth) are the building blocks of all the physical and subtle bodies existing in this whole universe. These are called as the ‘Adippadai Boothams’ (Basic Elements) (or) ‘Panchaboothams’.

These five elements together constitute the human body and origin of other material objects are explained as Pancheekaranam (Mutual Intra Inclusion). None of these elements could act independently by themselves. They could act only in co-ordination with other four elements. All the living creatures and the non-living things are made up of these five basic elements. The five basic elements form the connecting link between the Microcosm (Man) and Macrocosm (World). This concept is evident from Siddhar’s lines,

“அந்தந்துறையில் எந்தக் கால்மை;
பின்னருறையில் எந்தக் ஆண்மை”

Any change in the universe due to natural or unnatural causes will create changes in human systems. For example the natural disorders like cyclone, heavy rain, mist and scorching sun or man created impurities of air and water will create changes both in the atmosphere and in the human body. Hence the change in the elementary conditions of external world has its corresponding change in the human organs.

"பிறியது இன்றுவிட்டு மருந்தியர்களுக்கு குறுக்கையை குறுக்கையும் பாகிவிலை"

-சிவநூற்கோபியாம்
As per the above lines, the universe and the human body are made of five basic elements.

3. A.2. THE 96 BASIC PRINCIPLES (96 Thathuvam)

According to Siddha system of medicine, ‘Thathuvam’ is considered as a science that deals with basic functions of the human body. Siddhars described 96 principles as the basic constituents of human body that include physical, physiological, psychological and intellectual components of an individual. These 96 Thathuvams are considered to be the cause and effect of our physical and mental well-being. The Thathuvam is the author of the conception of human embryo on which the theory of medicine is based.

1. BOOTHAM – 5 (ELEMENTS)

Aagayam - Firmament  
Vaayu - Flatus(Air)  
Thee - Fire  
Neer - Fluid(Water)  
Mann - Firm Ground( Earth)

2. PORI – 5 (SENSE ORGANS)

Sevi (Ear) - a structural component of ‘Aagayam’ bootham  
Thol (Skin) - a structural component of ‘Vaayu’ bootham  
Kann (Eye) - a structural component of ‘Thee’ bootham  
Naakku (Tongue) - a structural component of ‘Neer’ bootham  
Mookku (Nose) - a structural component of ‘Mann’ bootham
3. PULAN – 5 (FUNCTIONS OF SENSE ORGANS)

Kaetal - Hearing, a functional component of Aagayam bootham
Thoduthal - Touch, a functional component of Vaayu bootham
Paarthal - Vision, a functional component of Thee bootham
Suvaithal - Taste, a functional component of Neer bootham
Nugarthal - Smell, a functional component of Mann bootham

4. KANMENTHIRIYAM – 5 (MOTOR ORGANS)

Vaai (Mouth) - Speech is delivered in relation with Space element.
Kaal (Leg) - Walking takes place in concordance with Air element.
Kai (Hands) - Giving/Taking are carried out with the influence of Fire element.
Eruvaai (Rectum) - The excreta is eliminated in association with Water element.
Karuvaai (Sex Organs) - The Sexual acts are carried out in association with the earth element.

5. KARANAM – 4 (INTELLECTUAL FACULTIES)

1. Manam - Thinking about something
2. Bhuddhi - Deeply analyzes the same
3. Agankaaram - Determination to do the same
4. Siddham - Accomplishment of the determined Thing

6. ARIVU – 1 (WISDOM OF SELF REALIZATION)

To analyze good and bad

7. NAADI – 10 (CHANNELS OF LIFE FORCE RESPONSIBLE FOR THE DYNAMICS OF PRANAN)

Idakalai - Starts from the right big toe, runs criss-cross to end in the left nostril
Pinkalai - Starts from the left big toe, runs criss-cross to end at the right nostril.
Suzhumunai - Starts from moolaathaaram and extends upto centre of head
Siguvai - Located at the root of tongue; it helps in the swallowing of food and water

Purudan - Located in right eye.

Kanthari - Located in left eye.

Atthi - Located in right ear.

Allampudai - Located in left ear.

Sangini - Located in genital organ

Gugu - Located in ano-rectal region

8. VAAYU – 10 *(VITAL NERVE FORCE WHICH IS RESPONSIBLE FOR ALL KINDS OF MOVEMENTS)*

**Uyir kaal (Piraanan)**

This is responsible for the respiration of the tissues, controlling knowledge, mind and five sense organs and digestion of the food taken in.

**Keel nokku kaal (Abanan)**

It lies below the umbilicus. It is responsible for the downward expulsion of stools and urine, ejaculation of semen and menstruation.

**Paravu kaal (Viyanan)**

This is responsible for the motor and sensory function of the entire body and the distribution of nutrients to various tissues.

**Mael nokku kaal (Uthanann)**

It originates at Utharakini. It is responsible for digestion, absorption and distribution of food. It is responsible for all the upward movements.

**amaanan (Nadu kaal)**

This is responsible for the neutralization of the other 4 Valis i.e. Piranan, Abanan, Viyanan and Uthanann. Moreover it is responsible for the nutrients and water balance of the body.
Naagan

It is a driving force of eye balls responsible for movements.

Koorman

It is responsible for the opening and closing of the eyelids and also vision. It is responsible for yawning.

Kirukaran

It is responsible for the salivation of the tongue and also nasal secretion. Responsible for cough and sneezing and induces hunger.

Devathathan

This aggravates the emotional disturbances like anger, lust, frustration etc. As emotional disturbances influence to a great extent the physiological activities, it is responsible for the emotional upsets.

Dhanancheyan

Expelled three days after the death by bursting out of the cranium. It is responsible for edema, plethora and abnormal swelling in the body in the pathological state.

9. AASAYAM – 5 (VISCERAL CAVITIES)

1. Amarvasayam (Reservoir Organ)

Stomach. It lodges the ingested food.

2. Pakirvasayam (Absorption Site)

Small intestine. The digestion and assimilation of food, absorption of saaram from the digested food are done by this asayam.

3. Malavasayam (Excretory organ for solid waste)

Large Intestine, especially rectum, the place where the expulsion of undigested food parts and flatus takes place.
4. Chalavasayam (Excretory organ for liquid waste)

Urinary Bladder, kidney. Site of the formation and excretion of urine.

5. Sukkilavasyam (Genital organs.)

Site of production and development of spermatazoa and ovum.

10. KOSAM – 5 (*FIVE STATUS OF THE HUMAN BODY OR SHEATH*)

1. Annamaya Kosam - Gastro intestinal system
2. Pranamaya Kosam - Respiratory system
3. Manomaya Kosam - Mental System
4. Vignanamaya Kosam - Nervous system and higher intellect
5. Aananthamaya Kosam - Reproductive system

11. AATHARAM – 6 (*STATIONS OF SOUL*) “µõ ¿ Á º¢ Å¡

1. Moolatharam

Situated at the base of spinal column between genital and anal orifice and beneath the perineum. Letter “µõ” is stationed here.

2. Swathitanam

Located 2 fingerwidths above the Moolaathaaram, (i.e.) midway between genital and navel region. Letter “¿” is inherently present here. Earth element is attributed to this region.

3. Manipooragam

Located 8 fingerwidths above the Swathitanam, (i.e.) at the naval center. Letter “Á” is inherently present here. Element is water.

4. Anakatham

Located 10 fingerwidths above Manipooragam, (i.e.) location of heart. Letter found is“º¢”. Element is fire.
5. Visuthi

Located 10 fingerwidths above the Anakatham (i.e.) located in throat. Letter “Å,” is inherently present. Element is Air.

6. Aakinai

Situated between the two eyebrows. Letter “Å” is inherently present here. Element is Space

12. MANDALAM – 3 (REGIONS)

Thee Mandalam (fire zone):

Fire Zone is found 2 finger widths above the Moolaathaaram

Gnayiru Mandalam (Solar zone):

Solar zone, located 4 finger widths above the umbilicus.

Thingal Mandalam (lunar zone):

Lunar zone is situated at the center of two eye brows

13. MALAM – 3 (THREE IMPURITIES OF THE SOUL)

Aanavam

This act clouds the clarity of thought, cognitive power of the soul, yielding to the egocentric consciousness like ‘I’ and ‘Mine’ claiming everything to be his own (Greediness).

Kanmam

Goes in collaboration with the other two responsible for incurring Paavam (the Sin) and Punniyam (Sanctity / virtuous deed).

Mayai

Serves as an obstacle due to the mentality of claiming ownership of the others property and thereby inviting troubles.
14. THODAM- 3 (THREE HUMOURS)

Vali (Vatham) - It is the creative force formed by combination of Vaayu and Aakaya bootham

Azhal (Pitham) - It is the protective force. Formed by Thee bootham

Iyam (Kabam) - It is the destructive force. Formed by Mann and Neer Bootham

15. EADANAI -3 (PHYSICAL BINDINGS)

Porul Patru - Materialistic affinity
Puthalvar Patru - Sibbling / Familial bonding
Ulaga Patru - Worldly affections

16. GUNAM – 3 (THREE COSMIC QUALITIES)

Sathuvam (Characters of Renunciations or Ascetic Virtues):

The grace, control of senses, wisdom, penance, generosity, Excellence, calmness, truthfulness is the 8 qualities attributed to their benevolent trait.

Raasatham (Royal character):

Enthusiasm, wisdom, valour, virtue, penance, offering gift, art of Learning, listening are the 8 traits

Thamasam (Carnal / Immoral Character):

Immorality, lust, anger, murderousness, violation of justice, gluttony, falsehood, forgetfulness, fraudulence, etc.

17. VINAI – 2 (ACT)

Nalvinai - Good Acts (Meritorious acts)
Theeevinai - Bad Acts (Sinful acts)
18. RAGAM – 8 (THE EIGHT PASSIONS)

- Kaamam - Lust
- Kurotham - Grudge / Hatred
- Ulobam - Stingy
- Moham - Infatuation
- Matham - Rut (The feeling of high ego towards oneself)
- Marcharyam - Internal Conflict, Envy
- Idumbai - Mockery
- Ahankaram - High Ego

19. AVATHAI – 5 (FIVE STATES OF CONSCIOUSNESS)

1. Ninaivu - State of wakefulness with the 14 karuvikaranathigal in all vibrancy (5 Pulan, 5 Kanmaenthiriyam and 4 Karanam) and is able to experience the pleasures and pains

2. Kanavu - State of dreams. In this 10 karuvikaranathigal (5 Pulan, 5 Kanmaenthiriyam) except karanam all lies dormant in the neck.

3. Urakkam - State of Sleep after which one cannot recapitulate what is seen or heard. The respiration lies in the heart.

4. Perurakkam - State of Repose (Tranquil or Peaceful State). The Jeevaathma lies in the naabi, producing the respiration.

5. Uyirpadakkam – Oblivious of the surroundings. The Jeevaathma is deeply immersed in Moolaathaaram resulting in a state of unawareness.

3. A.3.THE UYIR THATHUKKAL

The physiological units of the Human body are,

Vali (Vatham),
Azhal (Pitham) and
Iyyam (Kapham).

They are also formed by the combination of the five basic elements. Accordingly Vali is formed by the combination of Vali (Air) and Aagayam (Space). This is the Creative force. Azhal is formed by Thee (Fire). This is the Force of Preservation. Iyyam
is formed by Mann (Earth) and Neer (Water). This is the Destructive Force. These three humors are in the ratio 4:2:1 in equilibrium which is a healthy normal Condition. They are called as the life forces or humours.

"The formation of Uyir Thathukkal, is formed by Mann (Earth) and Neer (Water). This is the Destructive Force. These three humors are in the ratio 4:2:1 in equilibrium which is a healthy normal Condition. They are called as the life forces or humours.

THE FORMATION OF UYIR THATHUKKAL,

The Vali naadi is formed by the combination of Abanan and Idagalai.

The Azhal naadi is formed by the combination of Piranan and Pinkalai.

The Iyya naadi is formed by the combination of Samanan and Suzhumunai.

The Vali naadi is formed by the combination of Abanan and Idagalai.

The Azhal naadi is formed by the combination of Piranan and Pinkalai.

The Iyya naadi is formed by the combination of Samanan and Suzhumunai.
I. Vali (Vatham)

Vali is soft, fine and the temperate (coolness and hotness) which could be felt by touch.

The sites of vali

According to Vaithya Sathakam, Vali dwells in the following places:

"நிலில் நரம்புச் செய்யவும் பாது
சிரியாகவும் வெரலங்கள் கொடுவின்
நிலில் தான் வளியும் கரவு
செய்யப்பட்டு பெரியவற்றை எளிதாக வளை
சிரியாக வருவதிலே கொடுவின்
சிரியாக பார்க்கின்றே வளைவு"  

- வகையும் ஏதை


"அழிக்கின்ற மார்க மாலிகின்ற"  

- நிகழ்வு

"குறுக்கு மாற்றுக் கிளிப்லின் விகாரம்
வாக்குக் கிளிப்லின் விகாரம்"  

- பாறை

According to Sage Thirumoolar and Sage Yugi muni, the location of Vatham is the anus and the sub navel region.

Properties of Vali

"அமியால்பல் காய்வு புள்ளிச்சந்தித் தமள்
சுற்றிலைப் பயனையும் தமிழின்
மையைப் பாறைக்குள் மையை குறுக்கும்
சிரியாகம் பார்க்கின்ற வளை"  

- சிற்று மாற்றமாக்கும் குறைகு
The following are the natural properties of Vali,

- To stimulate the respiration
- To activate the body, mind and the intellect.
- To activate the fourteen different types of natural reflexes or urges.
- To activate the seven physical constituents in functional co-ordination.
- To strengthen the five sense organs.

In the above process Vatham plays a vital role in assisting the body functions.

II. Azhal (Pitham)

The nature of Azhal is Atomic. It is sharp and hot. The ghee becomes watery, salt crystallises and jaggery melts because of heat. The heat of Azhal is responsible for many actions and their reactions.

**The sites of Azhal**

According to *Vaithiya Sathagam*, the Pingalai, Urinary bladder, Stomach and Heart are the places where Azhal is sustained. In addition to the above places, the umbilicus, epigastric region, stomach, sweat, saliva, blood, essence of food, eyes and skin are also the places where Azhal sustains. Yugi muni says that, the Azhal resides in urine and in the places below the neck region.

**The character of Azhal**

Azhal is responsible for the digestion, vision, maintenance of the body temperature, hunger, thirst, taste etc. Its other functions include thought, knowledge, strength and softness.

**The functions of Azhal**

- Maintenance of body temperature
- Produces reddish or yellowish colour of the body.
- Produce heat energy on digestion of food.
- Produces sweating
- Induces giddiness.
Produces blood and the excess blood is let out.

Gives yellowish colouration to the skin, eyes, faeces and urine

Produce anger, heat, burning sensation, inaction and determination.

Gives bitter or sour taste.

*Types of Azhal*

1. **Aakkanal – Anila pitham or Prasaka pitham – The fire of digestion.**

   It lies between the stomach and the intestine and causes digestion and dries up the moist ingested substance.

2. **Vanna eri – Ranjaga pitham – Blood promoting fire**

   This fire lies in the stomach and gives red colour to the chyle and produces blood.
   It improves blood.

3. **Aatralanki – Saathaga pitham – The fire of achievement**

   It gives energy to do the work.

4. **Ulloli thee – Prasaka pitham – The fire of brightness.**

   It gives colour, complexion and lusture to the skin.

5. **Nokku Azhal – Alosaga pitham – The fire of vision.**

   It lies within the eyes and causes the faculty of vision. It helps to visualize things.

**III. Iyyam (Kapam)**

*The nature of Iyyam*

Greasy, cool, dull, viscous, soft and compact are the natures of Iyyam.

*Sites of Iyyam*

Head, tongue, eyes, nose, throat, thorax, bone, bone marrow, Joints, blood, fat, sperm and colon are the sites of Iyyam. It also lies in stomach, spleen, the pancreas, chyle and lymph.
The natural quality of Iyyam

Stability, greasiness, formation of joints, the ability to withstand hunger, thirst, sorrow and distress are the qualities. It also helps to withstand sufferings.

Functions of Iyyam

Greasiness, strength, roughness, knowledge, cool, growth, heaviness of bone, restriction of joint movements, pallor, indigestion, deep sleep and to have a sweet taste in tongue are the functions of Iyyam. The skin, eyes, faeces and urine are white in colour due to the influence of Iyyam.

Five types of Iyyam

1. Azhal Iyyam - Avalambagam

Heart is the seat of Avalambagam. It controls all other 4 Iyyams

2. Neerpi iyyam - Kilethagam

Its location is stomach. It gives moisture and softness to ingested food.

3. Suvai kaan iyyam – pothagam

Its location is tongue. It is responsible for the sense of taste.

4. Niraivur iyyam – Tharpagam

It gives coolness to the eyes.

5. Ondri iyyam – Santhigam

It gives lubrication to the bones particularly in the joints

3. A.4. THE UDAL THATHUKKAL

Udal Thathukkal are the basic physical constituents of the body. They are also constituted by the Five Elements.
SEVEN PHYSICAL CONSTITUENTS OF THE BODY

1. Saaram - This gives mental and physical perseverance.
2. Senneer - Imparts colour to the body and nourishes the body
3. Oon - It gives shape to the body according to the physical activity and plasters the skeleton to give the body a plumpy appearance.
4. Kozhuppu - It lubricates the joints and other parts of the body for smooth functioning.
5. Enbu - Supports the frame and responsible for the postures and movements of the body.
6. Moolai - It occupies the medulla of the bones and gives strength and softness to them.
7. Sukkilam - It is responsible for reproduction.

3. A.5. UDAL THEE (Four kinds of body fire)

There are four kinds of body fire. They are Samaakkini, Vishamaakkini, Deeshaakkini and Manthaakkini.

Samaakkini

The digestive fire is called as Samaakkini. This is constituted by Samana Vayu, Anala Pitham and kilethaga Kapham. If they are in normal proportion, then it is called as Samaakkini. It is responsible for the normal digestion of the food.

Vishamaakkini

Due to deranged and displaced Samana Vayu, it takes longer time for digestion of normal food. It is responsible for indigestion due to delay in digestive process.

Deeshaakkini

The Samana vayu blends up with the Azhal, which leads to increased Anala Pitham, so food is digested rapidly.

Manthaakkini

The Samana vayu conjugates with the Iyyam, which leads to increased Kilethaga Kapham. Therefore food is sluggishly digested for a very longer period leading to abdominal pain, distention, heaviness of the body etc.
3. A.6. THINAI

*There are five thinai (the land)*

Kurinchi - Mountain and associated areas
Mullai - Forest and associated areas
Marudham - Agricultural land and associated areas
Neidhal - The coastal and associated areas
Paalai - Desert and associated areas

3. A.7. KAALAM

Ancient Tamilians divided a year into six different seasons known as Perumpozhudhu and likewise the day into six segments which are known as Sirupozhudhu

**Perumpozhudhu:**

A year is divided into six seasons. They are as follows

Kaarkalam – Monsoon season (August 16 – October 15)
Koothirkalam – Postmonsoon season(October 16 – December 15)
Munpanikalam - Early winter season (December 16 – February 15)
Pin panikalam – Late winter season (February 16 – April 15)
Illavenilkalam – Early summer season (April 16 – June 15)
Mudhuvenilkalam – Late summer season(June 16 – August 15)

**Sirupozhudhu**

A day is divided into six yamams. They are,

1. Maalai (Evening),
2. Idaiyammam (Midnight),
3. Vaikarai (Dawn),
4. Kaalai (Morning),
5. Nannpakal (Noon),

Each perumpozhudhu and sirupozhudhu is associated with the three humors naturally.
3. A.8.FOURTEEN NATURAL REFLEXES/ URGES

The natural reflexes excretory, protective and preventive mechanisms are responsible for the urges and instincts. They are 14 in number,

1. Vatham (Flatus)
2. Thummal (Sneezing)
3. Siruneer (Micturition)
4. Malam (Defaecation)
5. Kottavi (Act of yawning)
6. Pasi (Sensation of hunger)
7. Neer vetkai (Sensation of thirst)
8. Erumal (Coughing)
9. Ellaipu (Fatigue)
10. Thookam (Sleep)
11. Vaanthi (Vomiting)
12. Kaneer (Tears)
13. Sukilam (Semen)
14. Suvasam (Breathing)

These natural reflexes are said to be an indication of normal functioning of our body. A proper maintenance should be carried out and they should not be restrained with force.
3. B. SIDDHA PATHOLOGY

3. b.1. KUGARANA NILAI IN SIDDHA MEDICINE

According to Siddha System, human body sustains the state of healthy living via keeping the Three Humours- Vatham, Pitham and Kabam in equilibrium, influenced by dietary habits, daily activities and the environment around. The three humours represent the five basic elements or bhuthas. In case this equilibrium is disturbed, it leads to a condition known as disease. It is basically the derangement of five elements, which in turn alters the Three Humors. There can either be a decrease or increase in the balance.

3. b.2. DISEASE

Disease is also known by other names viz sickness, distemper, suffering and ailment, distress of mind, chronic disease and dreadful illness.

3. b.3. THE CHARACTRISTICS FEATURE OF DISEASE

Diseases are of two kinds:

Pertaining to the body

Pertaining to the mind according to the variation of the three humors.

1. Causes of Disease

Excepting the disease caused by our previous births, the disease is normally caused by the disparities in our food habits and actions. This has been rightly quoted in the following verses by Sage Thiruvalluvar,

"நிலையை தாளையை இரவையை நீக்க அரிமுத்தா செய்திலிருந்த குன்று"  

-திருவள்ளுvar

The food and actions of a person should be in harmony with the nature of his body. Any increase or decrease in a humor viz. Vatham, Pitham, Kabam leads to the derangement of the three humors. The acceptance of food means the taste and quality of the food eaten and a person’s ability to digest. ‘Action’ mean his good words, deeds or bad actions. According to Thiruvalluvar, the disease is caused due to the increase or decrease of three humors causing the upset of equilibrium.
So disease is a condition in which there is derangement in the five elements, which alters the three humors, reflected in turn in the seven physical constituents. The change could be an increase or decrease in the humours. This shows the following signs as per vitiation of the individual humour.

As per Theraiyar, the cause of disease is vitiated Vatha, Pitha and Kaba, increased appetite, increased thirst, excessive hot, anger, constipation, dysuria polluted water.
### 2. QUANTITATIVE CHANGES OF UYIR THATHUKKAL

<table>
<thead>
<tr>
<th>HUMOUR</th>
<th>INCREASED</th>
<th>DECREASED</th>
</tr>
</thead>
<tbody>
<tr>
<td>VALI (Vatham)</td>
<td>Wasting, blackish discoloration, affinity to hot foods, tremors, distended abdomen, constipation, weakness, insomnia, weakness in sense organs, giddiness and laziness.</td>
<td>Body pain, feeble voice, and diminished capability of the brain, decreased intellectual quotient, syncope and increased kabam condition.</td>
</tr>
<tr>
<td>AZHAL (Pitham)</td>
<td>Yellowish discoloration of conjunctiva, skin, urine and faeces, polyphagia, polydypsia, dyspepsia, burning sensation all over the body and decreased sleep.</td>
<td>Loss of appetite, cold, pallor and features of increased kabam.</td>
</tr>
<tr>
<td>IYYAM (Kabham)</td>
<td>Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold, decreased physical constituents, dyspnoea, flatulence, cough and excessive sleep.</td>
<td>Giddiness, dryness of the joints and prominence of bones. Profuse sweating in the hair follicles and palpitation.</td>
</tr>
</tbody>
</table>
3. UDAL THATHUUKAL

UDAL THATHUUKAL

These are the changes produced when Udal thathukkal are affected.

<table>
<thead>
<tr>
<th>UDAL KATTUKKAL</th>
<th>INCREASED FEATURES</th>
<th>DECREASED FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SARAM</td>
<td>Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold, decreased physical constituents, dyspnoea, flatulence, cough &amp; excessive sleep</td>
<td>Dryness of skin, tiredness, loss of weight, lassitude and irritability while hearing louder sounds.</td>
</tr>
<tr>
<td>2. SENNEER</td>
<td>Boils in different parts of the body, spleenomegaly, tumours, pricking pain, loss of appetite, haematuria, hypertension, reddish eye and skin, leprosy and jaundice.</td>
<td>Affinity to sour and cold food, nervous, debility, dryness and pallor.</td>
</tr>
<tr>
<td>3. OON</td>
<td>Tubercular adenitis, venereal diseases, extra growth around neck, cheeks, abdomen, thigh and genitalia.</td>
<td>Lethargic sense organs, pain in the joints, muscle wasting in mandibular region, gluteal region, penis and thighs.</td>
</tr>
<tr>
<td>4. KOZHUPPU</td>
<td>Identical feature of increased flesh, tiredness, dyspnoea on exertion, extra musculature in gluteal region, external genitalia, chest, abdomen and thighs.</td>
<td>Loins pain, spleenomegaly and emaciation.</td>
</tr>
<tr>
<td>5. ENBU</td>
<td>Excessive ossification and dentition.</td>
<td>Joint pain, falling of teeth, falling and splitting of hairs and nails.</td>
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</tr>
<tr>
<td>6. MOOLAI</td>
<td>Heaviness of the body and eyes, swollen interphalangeal joints, oliguria and non-healing ulcers.</td>
<td>Osteoporosis &amp; Blurred vision.</td>
</tr>
<tr>
<td>7. SUKKILAM (OR) SURONITHAM</td>
<td>Increased sexual activity, urinary calculi.</td>
<td>Dribbling of sukkilam/ suronitham or senner during coitus, pricking pain in the testis &amp; inflammed and contused external genitalia.</td>
</tr>
</tbody>
</table>
KAALAM

Change in Elementary conditions of the external world has its corresponding change in the human organs. They are as follows:

<table>
<thead>
<tr>
<th>KAALAM</th>
<th>KUTTRAM</th>
<th>STATE OF KUTTRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karkaalam (Rainy season)</td>
<td>Vatham ↑↑</td>
<td>Ectopic escalation</td>
</tr>
<tr>
<td>(Aavani – Puratasi)</td>
<td>Pitham ↑</td>
<td>Insitu escalation</td>
</tr>
<tr>
<td>(Aug 16 – Oct 15)</td>
<td>Kabam (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>Koothir Kaalam (Postrainy season)</td>
<td>Vatham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Iypasi – Karthigai)</td>
<td>Pitham ↑↑</td>
<td>Ectopic escalation</td>
</tr>
<tr>
<td>(Oct 16 – Dec 15)</td>
<td>Kabam (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Munpani Kaalam (Winter season)</td>
<td>Vatham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Markazhi – Thai)</td>
<td>Pitham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Dec 16 – Feb 15)</td>
<td>Kabam (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinpani Kaalam (Post winter)</td>
<td>Vatham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Masi – Panguni)</td>
<td>Pitham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Feb 16 – Apr 15)</td>
<td>Kabam ↑</td>
<td>Insitu escalation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elavenir Kaalam (Summer)</td>
<td>Vatham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Chithirai – Vaikasi)</td>
<td>Pitham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Apr 16 – Jun 15)</td>
<td>Kabam ↑↑</td>
<td>Ectopic escalation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mudhuvenir Kaalam (Post summer)</td>
<td>Vatham ↑</td>
<td>Insitu escalation</td>
</tr>
<tr>
<td>(Aani – Aadi)</td>
<td>Kabam (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Jun 16 – Aug 15)</td>
<td></td>
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</tr>
</tbody>
</table>
6. Alteration in Reflexes (14 Vegangal)

There are 14 natural reflexes involved in the physiology of normal human beings. If willfully restrained or suppressed, the following are resulted.

**Vatham (Flatus)**

This urge should not be suppressed. If it is suppressed it leads to chest pain, epigastric pain. Abdominal pain, ache, constipation, dysuria and indigestion predominate.

**Thummal (Sneezing)**

If restrained, it leads to headache, facial pain, low back pain and neuritic pain in the sense organs.

**Siruneer (urine)**

If restrained, it leads to urinary retention, urethral ulcer, joint pain, pain in the penis, gas formation in abdomen.
Malam (Faeces)

If restrained, it leads to pain in the knee joints, headache, general weakness, flatulence and other diseases may also originate.

Kottavi (Yawning)

If restrained, it leads to indigestion, leucorrhoea, and abdominal disorders.

Pasi (Hunger)

If restrained, it leads to the tiredness of all organs, emaciation, syncope, apathetic face and joint pain.

Neer vetkai (thirst)

If restrained, it leads to the affection of all organs and pain may supervene.

Kaasam (Cough)

If it is restrained, severe cough, bad breath and heart diseases will be resulted.

Ilaippu (Exhaustiveness)

If restrained, it will lead to fainting, urinary disorders and rigor.

Nithirai (Sleep)

All organs will get rest only during sleep. So it should not be avoided. If disturbed it will lead to headache, pain in the eyes, deafness and slurred speech.

Vaanthi (Vomiting)

If restrained, it leads to itching and symptoms of increased Pitham.

Kanneer (Tears)

If it is restrained, it will lead to Sinusitis, headache, eye diseases and Chest pain.

Sukkilam (Semen)

If it is restrained, there will be joint pain, difficulty in urination, fever and chest pain.

Swaasam (Breathing)

If it is restrained, there will be cough, abdominal discomfort and Anorexia.
3. C. DIAGNOSTIC METHODOLOGY

The Diagnostic methodology in Siddha system is unique as it is made purely on the basis of clinical acumen of the physician. The diagnosis is arrived from,

- Poriyal arithal and Pulanal arithal (examination of sense organs)
- Vinaathal (Interrogation)
- Envagai thervu (eight fold examination)
- Manikkadai nool (wrist circumference sign)
- Sothidam (astrology)

Assessment of deranged three dosham (humours), Udal thathukal and 96 principles.

**PORIYAL ARIDHAL**

The physician should examine the patient’s porigal by his porigal.

- Mei - To feel all types of sensation
- Vaai - For knowing taste
- Kan - For vision
- Mooku - For knowing the smell
- Sevi - For hearing

**PULANAL ARITHAL**

The physician should examine the patient’s pulangal by his porigal & Pulangal

- Hearing - Ear
- Vision - Eye
- Taste - Tongue
- Sensation - Skin
- Smell - Nose
VINAADHAL (INTERROGATION)

The physician should interrogate the patient’s name, age, occupation, native place, Socio-economic status, dietary habits, present complaints, history of present illness, aggravating factors, history of previous illness

ENVAGAI THERVUGAL

"அகத்து விளச்சம் கருதும் வலையாகும்
பறந்துதியை பலப்பு பார்மா - வைகைற்கு விளம்பு
சாலைத் தொலைவாண்டுத்தாக்கான கண்டை மோசு குறியிட்டு தந்வதிகத்தாக் பாது நூற்றிட்டியில்க"

- அகத்து வணவூரி கிருமாவால் வைகைற்பாண - 4000

According to Agathiyar Vaithiya Sinthaamani Venba – 4000, the Envagaithervu Includes Naadi (Pulse) Naa (Tongue), Niram (Color), Mozhi (Voice), Vizhi (Eyes), Malam (Faeces), Neer (Urine) and Sparisam (Touch & palpation).

"பாது பாது வணவூரி வைகைற்பாணி
சாலைத்து பண்டியில் பரிசாரம்"

-வைகைற்பாண.

"மேல்புறி திறுற்புரியும் சிறுவரியாள் கங்கையார்"

-வைகைற்பாண.

As per Saint Therayar, the eight methods of diagnosis are Naadi (Pulse) Naa (Tongue), Niram (Color), Mozhi (Voice), Vizhi (Eyes), Malam (Faeces), Neer (Urine) and Sparisam (Touch & palpation).

பெறுமையான கிருமாவால் வைகைற்பாண

"பாது பாது பாது வணவூரி வைகைற்பாணி பாது வணவூரி வைகைற்பாணி
சாலைத் தொலைவாண்டு கண்டை மோசு குறியிட்டு
சாலைத் தொலைவாண்டு கண்டை மோசு குறியிட்டு
சாலைத் தொலைவாண்டு கண்டை மோசு குறியிட்டு
சாலைத் தொலைவாண்டு கண்டை மோசு குறியிட்டு"
As per Sage Agathiyar, Naadi (pulse), Malam (stools), Salam (urine), Niram (complexion), Gunam (character), MugaKuri (facies), Thegam (constitution), Vayadhu (age), Elamai are the diagnostic tools.

According to literature KannuSaami Paramparai Vaithiayam, Naadi, Naa, Thegam, Thodu unarvu, Niram, Malam, Salam and Vizhi are the diagnostic tools.

According to Agathiyar Vaithiya Rathina Surukkam, the diagnostic tools are Naadi (Pulse), Vizhi (Eyes), Kurigunam (Signs), Nalkurippu (Chronology), Maeni (Constitution), Malam (Stools) And Neer (Urine).

According to the Paripoorana Naadi, the diagnostic parameters are Mugam (Facies), Pal (Teeth), Vai (Mouth), Naakku (Tongue), Kaayam, Irumalam, Naadi (Pulse).
According to Dhanvantri Vaithiyam, the diagnostic parameters are Naadi (Pulse), Mugam (Facies), Malam (Stools), Neer (Urine), Udal (Constitution), Vizhi (Eyes), Naa (Tongue), Pal (Teeth).

According to the above literature, the diagnostic tools are Naadi (Pulse), Kan (Eyes), Sattham (Voice), Thegam (Constitution), Sparisam and Naa (Tongue).

1. TONGUE EXAMINATION

As per Agathiyar Vaithiya Sinthaamani Venba – 4000, fissured and black tongue represent vitiated Vatha humor, pallor represents Kabam, green colour represents Pitha humor and mixed appearance of these features resembles Sanni noi.
In Vali derangement, tongue will be cold, rough, furrowed and tastes pungent. In Azhal, it will be red or yellow and kaippu taste will be sensed. In Iyyam, it is pale, sticky and sweet taste will be lingering. In depletion of Thontham, tongue will be dark with raised papillae and dryness.

Examination of tongue also includes the salivary examination. The following stanza describes salivary examination

"நாகமென் பரதமமாறும் பங்களாகவெண்ணது
நாகமென் பரமம் பிள்ளைமுறை - நாகமென்
காமாசையே நிறைவூடு நிறைவூடு நிறைவூடு - நாகமென்
காமாசையே நிறைவூடு நிறைவூடு நிறைவூடு நிறைவூடு நிறைவூடு..."

-காமாசையே பாரிய பார்க்கும் போது -4000

2. EXAMINATION OF COMPLEXION (நெய்த செறியுரு)

"ஞாயற்களில் பரதமம் செறியுரு செறியுரு
ஞாயற்களில் செறியுரு செறியுரு செறியுரு - ஞாயற்களில்
செறியுரு செறியுரு செறியுரு செறியுரு செறியுரு..."

-காமாசையே செறியுரு செறியுரு செறியுரு -4000
In Vali, Azhal and Iyyam vitiations, the colour of the body will be dark, yellow or red and fair respectively.

3. VOICE EXAMINATION:

"In the case of Vali, Azhal and Iyyam vitiations, the colour of the body will be dark, yellow or red and fair respectively."

- K. K. Radhakrishnan, Pramana, 1965
In vitiation of Vali, Azhal and Iyyam, the voice would be normal, high pitched and shrill or low pitched respectively. By the voice, the strength of the body can be assessed.

4. THE EYE EXAMINATION (அம்ம முட்டை)

"அம்மமகுடை பேரியும் கரக்கும் திருமாலியின்

கருப்புக்குடை பேரியும் கரக்கும் - கருப்புஞ்சை

சாத் பெரியுமியே தானியாக பெரியுமியே

ஏழுவில் மரகள் பேல்கும்”

- அகதியர் வைதியா சின்னாமணி வேந்பா - 4000

As per Agathiyar Vaithiya Sinthaamani Venba – 4000, in vititated Vali eyes turn black and tears shed. In vitiated Azhal humour, mukkutram and in jaundice yellowish discoloration occurs. In vitiated Iyyam, the eyes turn white.

"ஏழுவில் மரகள் பேல்கும் பெரியுமியே மரகள்

- கருப்புஞ்சை பேரியுமியே கருப்புக்குடை

கருப்புஞ்சை பேரியுமியே பெரியுமியே

கருப்புஞ்சை பேரியுமியே கருப்பு

பெரியுமியே தானியாக பெரியுமியே

சாத் பெரியுமியே தானியாக

சாத் பெரியுமியே தானியாக பெரியுமியே

சாத் பெரியுமியே தானியாக

சாத் பெரியுமியே தானியாக பெரியுமியே

சாத் பெரியுமியே தானியாக

சாத் பெரியுமியே தானியாக பெரியுமியே

- கருப்புஞ்சை பேரியுமியே கருப்புஞ்சை
In Vali disease, the tears is darkened, in Azhal disease they are yellow, in Iyya disease they are whitish in colour and in Thontha disease the tears are multi coloured. In Vali disease there will be excessive tears (epiphora). In disturbance of all the three humuors, eyes would be inflammed and reddish.

5. FAECES EXAMINATION

As per Agathiyar Vaithiya Sinthaamani Venba – 4000, in vitiated Vali, the stool is hard and black. In vitiated Azhal, it is hot and red. In vitiated Iyyam it is cool and watery.

In excacerbated Vali, faeces is hard, dry and black in colour. In Azhal vitiation, it is yellow. In Iyyam, disturbance it is pale.
6. URINE EXAMINATION

"Neer’ refers to Urine ‘Kuri’ refers to Sign. Theraiyar, one of the renowned authors of Siddha medicine described urine examination and stages of health. He had explained about the colour and consistency of the urine in vitiated humor and disease. He also emphasised the spreading nature of a single drop of oil on the surface of the urine indicating the imbalance of specific dosha and prognosis of disease. Normal urine is straw coloured and odourless. The time of the day and food taken will have an impact on the colour of the urine.

COLOUR OF URINE

Yellow colour – similar to straw soaked water – indigestion
Lemon colour – good digestion
Reddish yellow – heat in body
Colour similar to flame of forest red or flame coloured excessive heat
Colour of saffron – extreme heat
As per Sikicharathna Theepam,

**CLUD OF URINE**  |  **PROGNOSIS**
--- | ---
Ruby red or milky white | Poor
Honey | Slow and take long time
Golden yellow | Good

**NEIKKURI (نجاح)**

"As per Sikicharathna Theepam, the spreading pattern of oil drop is the indicative of Vali, Azhal and Iyyam diseases e.g Aravu (Snake Pattern of spread) indicates Vali disease Mothiram (Ring Pattern of spread) indicates Azhal disease Muthu (Pearl Pattern of spread) indicates Iyya disease In Neikuri, the rapid spread of oil drop; Pearl beaded and Sieve type of spreading pattern indicates incurable state of the disease. From this, we can assess the prognosis by the Neikuri."
SPREADING PATTERN OF OIL - INTERVENTION

Lengthening - Vali
Splits - Azhal
Sieve - Iyyam
Stands as a drop - Poor prognosis
Slowly spreads - Good prognosis
Drop immerses into the urine - Incurable disease

TOUCH (றுவு சுற்று).

"அழுத்த வாழ்க்கையை குறிப்பிட்டு மாற்றுப்
மாற்றம் குறுக்குறுக்குப் போற்றும் - அழுத்தப்படும்
சுருக்குத் தெரிய்சே திருமண் போர்க்காகத்தில்
வழியே மாறாத முகப்பு மங்கா.

-அரேப்பார் முசுலின் சிறந்தவர் போர்க்கா - 4000
In Vali disease, some regions of the body felt chill and in some areas they are hot. In Azhal disease, we can feel heat. In Iyya disease, chillness can be felt. In Thontham diseases, we can feel altered sensations.

8. NAADI (அந்தி)

The ‘Pulse Diagnosis’ is a unique method in Siddha Medicine. The pulse should be examined in the Right hand for male and the left hand for female. The pulse can be recorded at the radial artery. By keenly observing the pulsation, the diagnosis of disease as well as its prognosis can be assessed clearly.

Naadi is nothing but the manifestation of the vital energy that sustains the life within our body. Naadi plays an most important role in Envagai thervu and it has been considered as foremost thing in assessing the prognosis and diagnosis of various diseases. Any variation that occurs in the three humors is reflected in the Naadi. These three humors organize, regularize and integrate basic functions of the human body. So, Naadi serves as a good indicator of all ailments.

- நாட்டியில் உள்ள விக்ளோபைட்டியட்டான் காணும் விளக்கம்
- நாட்டியில் உள்ள விக்ளோபைட்டியட்டான் காணும் விளக்கம்
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- நாட்டியில் உள்ள விக்ளோபைட்டியட்டான் காணும் விளக்கம்
- நாட்டியில் உள்ள விக்ளோபைட்டியட்டான் காணும் விளக்கம்

- நாட்டியில் உள்ள விக்ளோபைட்டியட்டான் காணும் விளக்கம்
Naadi is felt by,

Vali - Tip of index finger
Azhal - Tip of middle finger
Iyyam - Tip of ring finger

The pulse is measured in wheat/grain expansile heights. The normal unit of pulse diagnosis is 1 for Vali (Vatham), ½ for Azhal (Pitham) and ¼ for Iyyam (Kapham).

THE PULSE PLAY

Compared to the gait of various animals, reptiles and birds,

"மாறைக் கோயல் விளக்காக மறுக்கத்து வாரியா
தள்ளி மாறைக் கோயல் பிளேசுகள் வாரியா
மாறை கோயல் வாரியா மாறைக் கோயல் விளக்காகக்

--தோக்க வாய்ச்சு செய்து பாணம்

Vali - Movement of Swan and Peacock
Azhal - Movement of Tortoise and Leech
Iyyam - Movement of Frog and Serpent.

“மரங்கையான் கவலையான் மருந்தை அல்லது
சுருக்கு ஆல்கை கைதணி - மலர்தா கதா”

- காத்ருந்து கவலையான் குகையோரி வைக்கப்பட்டார் -4000

Naadi is examined in right side for men and on the left side for women.

MANIKKADAI NOOL (Wrist circumetric sign)

Agathiya soodamanikayaru ..

“காத்ருந்து கவலையான் குகையோரியான்
வெல்லியான செங்கமையான் வெல்லியான்
சுருக்கு ஆல்கை கைதணி வைக்கப்பட்டார்
நாதி காத்ருந்து குகையோரியான் வைக்கப்பட்டார்”

-புதியசித்தர் திகழு புதியசித்தர்

According to the Pathinen Siddhar Naadinool, Manikadainool is also helpful in diagnosis. This manikkadai nool is a parameter to diagnose the disease by measuring the circumference of the wrist by means of a thread and then dividing the measured circumference with the patient’s fingers. By this measurement the disease can be diagnosed.

When the Manikkadai nool is 11 fbs, the person will be stout and he will live a healthy life for many years. When the Manikkadai nool measures between 4 to 6, it indicates poor prognosis of disease and the severity of the illness will be high and it leads to death.

MANIKKADAI - INFEERENCE

NOOL
10 fbs - Pricking pain in chest and limbs, gastritis and ulcer result.
9 ¾ fb - Fissure, dryness and cough will be resulted.
9 ½ fbs - Odema, increased body heat, burning sensation of eye, fever, Mega noi and anorexia.
9 ¼ fbs - Dysuria, insomnia, sinusitis and burning sensation of eye.

9 fbs - Impaired hearing, pain around waist, thigh pain, unable to walk.

8 ¾ fbs - Increased body heat, skin disease due to toxins, abdominal discomfort, cataract, sinusitis.

8 ½ fbs - Leucorrhoea, venereal disorder and Infertility will occur.

8 ¼ fbs - Stout and painful body. Headache. Sinusitis and toxins induced cough.

8 fbs - Abdominal discomfort, gastritis, anorexia and venereal diseases.

7 ¾ fbs - Piles, burning sensation of limbs, headache, numbness occur. Within 2 years cervical adenitis and epistaxis results.

7 ½ fbs - Osteoporosis, abdominal discomfort, burning sensation of eyes, increased body temperature. Within 6 days all the joints of the limbs presents a swelling.

7 ¼ fbs - Lumbar pain, increased pitha in head, anemia, eye pain, odema and somnolence.

7 fbs - Pitham ascends to head, haemetemesis, phlegm, burning sensation of limbs and constipation.

6 ¾ fbs - Eye ache, dizziness, testis disorder. Within 3 years it causes anuria, pain and burning sensation over limbs, facial sweating results.

6 ½ fbs - Thirst, anorexia, increased body heat and vatham results.

6 ¼ fbs - Diarrhoea, belching, vomiting and mucous dysentery.

6 fbs - Reduced weight, phlegm in chest. It results in death within 20 days.

5 ¾ fbs - Delirium, dizziness, loss of consciousness. It results in death even if the patient takes gruel diet.

5 ½ fbs - Severity of illness is increased. Toxins spread to the head. Tooth darkens. Patient will die in 10 days.

5 ¼ fbs - Patient seems to be sleepy and death results on the next day.

5 fbs - Pallor and dryness of the body. Kabam engorges the throat and the person will die.

4 ¾ fbs - Dryness of tongue and tremor present. Patient will die in 7 days.
4 ½ fbs - Shrunken eyes, oedema will present and death results in 9 days.

4 ¼ fbs - Tremor, weakness of limbs and darkening of face occurs. Finally death results in two days.

4 fbs - Pedal oedema will be present. Patient will die in 5 days.

3. A.9. THE ASTROLOGY

Macrocasm and Microcosm

Man is said to be Microcosm, and the Universe is Macrocosm; since what exist in the Universe exists in the human body too. Man is being an integral part of universal nature. The forces prevailing in the microcosm (Human body) are analogous with that of the forces prevailing in the macrocosm (Universe). The natural forces acting in and through various organs of the body are intimately related to or similar to or correspond to the forces acting in and through the organisms of the world.

This closely follows the Siddhar’s doctrine,

"அதனை சிறியதைத்துங்கிய போதாமல்

போதாமல் சிறியதைத்துங்கிய அதனை

அதனை போதாமல் ஃபாசைது

அஹாஷ்கா தாங்க மார்காடை சிறாவிய"

- அஞ்சகிண

Astral influences:

All the influences which are radiated from the sun, planets and that of the stars can act upon the human bodies. Moon exercises a very bad impact on the disease in general especially during the period of new moon. For instance, paralysis, brain affections, dropsy, and stimulation of sexual perversions are resulted during the newmoon. Mars causes anemia and lack of nervous vigour. A conjugation of the moon with other planets such as Venus, mars, etc may make its influence still more injurious.

The 8th place forms the laghanam which deals about ones age, chronic diseases, death etc. In the organisms of man, these forces may act in an abnormal manner and cause disease. Similarly, in the great organism of the cosmos, they act abnormally likewise and bring about disease on earth and its atmospheric condition like earthquake,
storms etc. The Mars invisibly influences human’s blood constituents. The Venus instigates intersexual love.

The following are the instances in which every sign of the zodiac acts towards some particular parts of the body.

**1. According to T.V.S. Dictionary:**

<table>
<thead>
<tr>
<th>Zodiac</th>
<th>Part of the Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aries</td>
<td>Neck</td>
</tr>
<tr>
<td>Taurus</td>
<td>Neck and shoulder</td>
</tr>
<tr>
<td>Gemini</td>
<td>Arms and hands</td>
</tr>
<tr>
<td>Cancer</td>
<td>Chest and adjacent parts.</td>
</tr>
<tr>
<td>Leo</td>
<td>The heart and stomach</td>
</tr>
<tr>
<td>Virgo</td>
<td>The intestines, base of stomach and umbilicus</td>
</tr>
<tr>
<td>Libra</td>
<td>Kidney</td>
</tr>
<tr>
<td>Scorpio</td>
<td>Genitals</td>
</tr>
<tr>
<td>Sagittarius</td>
<td>Lips</td>
</tr>
<tr>
<td>Capricorns</td>
<td>Knees</td>
</tr>
<tr>
<td>Aquarius</td>
<td>Legs</td>
</tr>
<tr>
<td>Pisces</td>
<td>Feet</td>
</tr>
</tbody>
</table>

**2. According to literature Thiruvalluvar periya sunthara sekaram.**

<table>
<thead>
<tr>
<th>Zodiac</th>
<th>Part of the Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mesham</td>
<td>Head</td>
</tr>
<tr>
<td>Rishabam</td>
<td>Face</td>
</tr>
<tr>
<td>Mithunam</td>
<td>Neck</td>
</tr>
<tr>
<td>Kadagam</td>
<td>Shoulders</td>
</tr>
<tr>
<td>Simmam</td>
<td>Chest</td>
</tr>
<tr>
<td>Kanni</td>
<td>Side of body</td>
</tr>
<tr>
<td>Thulaam</td>
<td>Back, stomach</td>
</tr>
<tr>
<td>Virutchigam</td>
<td>Testicles</td>
</tr>
<tr>
<td>Thanusu</td>
<td>Thigh</td>
</tr>
<tr>
<td>Magaram</td>
<td>Knees</td>
</tr>
<tr>
<td>Kumbam</td>
<td>Heel</td>
</tr>
<tr>
<td>Meenam</td>
<td>Foot</td>
</tr>
</tbody>
</table>
4.A.10. The Impact of the Planets on the Human Organs

According to the literature Siddha Maruthuvanga Surukkam

Each of these planets hold jurisdiction over some parts of the body similar to the signs of the Zodiac. The planets exercise special power over some parts of the body resulting in a disease or diseases in accordance with their impacts on the three basic humors in the system.

Sani (Saturn)

It exhibits supremacy over the bones, tooth, cartilages, ear, spleen, bladder and brain and gives rise to fever, leprosy, paralysis, dropsy, cancer, cough, asthma, deafness of the right ear, hernia etc.

Guru (Jupiter)

It holds jurisdiction over the blood, liver, pulmonary veins, diaphragm, Muscles of the trunk and sense of touch & smell.

Sevvaai (Mars)

It has got power over the bile, gall bladder, left ear, pudendum, kidneys, fever, jaundice, convulsions, hemorrhage, carbuncle, erysipelas, ulcer etc.

Sukkiran (Venus)

It exercises its impact on the blood and semen, throat, breast, abdomen, uterus, genitalia, taste, smell, pleasurable sensation, gonorrhea, barrenness, Abscesses or even death from sexual passions or from poison.

5. Pudhan (Mercury)

It holds jurisdiction over the animal, spirit, also over legs, feet, hands, fingers, tongue, nerves and ligaments and produces fevers mania, phrenitis, epilepsy, convulsion, profuse expectoration or even death by poison, witchcraft and so on.
<table>
<thead>
<tr>
<th>Planets</th>
<th>Organs of impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Solar force</td>
<td>- Heart</td>
</tr>
<tr>
<td>2. Lunar force</td>
<td>- Brain</td>
</tr>
<tr>
<td>3. Mars</td>
<td>- Gall Bladder</td>
</tr>
<tr>
<td>4. Mercury</td>
<td>- Kidney</td>
</tr>
<tr>
<td>5. Venus</td>
<td>- Lungs</td>
</tr>
<tr>
<td>6. Jupiter</td>
<td>- Liver</td>
</tr>
<tr>
<td>7. Saturn</td>
<td>- Spleen</td>
</tr>
</tbody>
</table>

**According to literature Thiruvalluvar Periya Sunthara Sekaram.**

1. Sooriyan - Head  
2. Santhiran - Face  
3. Sevvai - Chest  
4. Puthan - Center of Posterior Trunk  
5. Guru - Stomach  
6. Sukkiran - Groin, Genitalia  
7. Sani - Thigh  
8. Raagu - Hands  
9. Kedhu - Legs

Each of these rasis and the organs of impact as well as the Girahams are found to be related with the resultant diseases of corresponding organs. Therefore, the human body is impregnated with the vital forces that could be acted upon by the astronomical bodies in the sky. With the augmented spiritual force, a sage is able to get control over the above said planets. All the others are under the influence of the forces exhibited by these asteroids.
KALLADAIPPU – DEFINITION:

According to the siddha maruthuvam by Dr.Kuppusamy, there is gradual or suddenly obstruction to the flow of urine, pain with burning sensation in the urethral tract, low back pain, renal angle pain and sand like crystal deposit in urine. These are characteristic features of kalladaippu.

As per Agathiyar Gunavagadam, kalladaippu is sand like crystal deposited and excreted in urine. Stones are stagnated in kidney, ureter, urinary bladder and urethra. Burning sensation in urethral orifice. Pain occurs in urethral tract when stone is moving from the urinary bladder. The pain is relieved by the passing out of stone.

As per T.V.Sambasivam pillai, kalladaippu is a large concentration of minerals in the bladder or kidney produces calculus or gravel. It is altered with difficulty in passing urine.
As per yugivaithiya sinthamani, Kalladaippu is due to,
- Intake of turbid water,
- Food contaminated with stones, bones, hair and sand.
- Intake of putrified food stuff and starch substances;
- Eating flatulence producing food while indigestion

There are 14 speeds or reflexes in our body. Urination is one of the 14 speeds .If one control the urination, ulcer may develop in urinary tract, pain in joints and genital region, derangement of abana vaayu occur which leads to the formation of renal calculus.
In Vali Kalladaippu, pain is felt just below the umbilical region and penis. It is characterized by,
  
Severe colic pain,
Dyspnoea,
Abdominal distension,
Oliguria and
Constipation.

2. அருகிய காலையப்பு:

-புலிய கணவியப் புனைப்புக் கோரையாளர் தமிழ்
In Azhal Kalladaippu,

Reduced urine output with characteristic burning sensation (similar to introducing a red-hot iron needle in to the urethra),

Red-blood coloured stones which blocks the ureter causing pricking pain and tenderness.

Iyya Kalladaippu is characterized by

- Excruciating pain in the umbilical region,
- Pain in the joints of upper and lower extremities,
- Low-backache,
- Spasmodic pain,
- Sweating and
- Gradual passing out of white coloured stone granules in the urine.
In Mukkutra Kalladaippu,

Severe pain is felt just below the urethral region with excess urination. It is characterized by disintegration of stones into small, sand-like granules in the urine.
5. REVIEW OF LITERATURE –

NEERKKURI NEIKKURI (OIL ON URINE SIGN)

5.1. In order to shed off the ambiguity in the diagnosis of disease through pulse perception. The exponents have charted out a method called Neerkuri - an incomparable method of diagnosis.

Lord Vinayaga who developed from the Pranava manthiram ‘om’, Lord Muruga, Lord Shiva and Parvathy should be meditated before determining the Neerkkuri and Neikkuri, which was emphasized by Sage Theraiyar in his book of Theraiyar Thylavarka surukkam.
On the day before the urine test one should take food, consisting of all the six tastes in an harmonious blend at the regular time based on one’s digestive fire (Appetite), after a sound overnight sleep, Urine should be collected in a crystal bowl and the test should be done before 90 minutes from dawn.

5.1.2. General features of urine:

"अष्टहृदयकोश अयोग्यता निरीक्षणमपि अपाकम अपकुश अन्यायपूर्ण स्निष्ठितमु प्रसूतियाः 
अर्डीक एकत्वाः शायदिक तीनकाचितः 
क्रियारूपो आशापूर्व क्षणात 
आवश्यकताः करिवित्त कर्मवसायम एवं 
सत्त्वकाचितकमयोजनमपि श्रेयसे 
मिश्री ज्वलनविहीन शुद्धिक्षेत्र कल्याणे।"

The following are the features of urine,

1. Colour (कल्याणे)
2. Density (तत्त्व)
3. Froth (प्रसूति)
4. Odour (प्रहार)
5. Deposits (मालान्य)

5.1.3. Different colour of urine:

"पिले विशेषताकेवल किसी दिनमें निर्यातितम 
स्निष्ठिताकोशमेयतैं एवंकोशमयैं।"
The urine may be of the colours,

1. Yellow
2. Red
3. Green
4. Black
5. White

5.1.4. SUBDIVISIONS IN EACH COLOURS:

According to the above verse there are six types in yellow, four in red, five in green, four in black and two in white coloured based on different disease conditions.
5.1.5. YELLOWISH CHANGES IN URINE:

1. Urine indicating states of improper digestion:

"செருமன் கேள்வி மிகுதியில் செருமன்கறலில் அமையும் குன்று."

Urine taking the colour of water in which straw is drenched.

2. Urine indicating the ongoing digestion

"பாசில் நீரேற்றுப் பேரியர் பாசில்
செருமன்கறன் நீரேற்று குன்று."

Here the colour of the urine is that of the Thurungi Pazham-Giant lime fruit (citrus medica).

3. Urine which shows excessive heat present in the body:

"சென்றலையும் சுண்பியும் செருந்திகு சிஏரீலியா
செம்பெலையும் செருந்திகு குன்று."

Yellowish red urine is suggestive of excessive body temperature.

4. The colour of the urine in hot nature:

"காம் தரசுகாளி பிப்பான் காரணியா
செம்பெலையும் செருந்திகு குன்று."

If the colour of urine is similar to the wild orange, it indicates the rise in temperature.

5. The colour of the very hot urine:

"செம்பெலையும் செருந்திகு செருந்திகு சிஏரீலியா
கருப்புச்சுருள் பலகை குன்று."

The flame coloured urine denotes high temperature.

6. Very hotter than previously mentioned:

"செம்பெலையும் செருந்திகு மிகுதியில் குருட்சு
செருந்திகு செம்பெலையும் செருந்திகு குன்று."

Saffron coloured urine denotes very high temperature in the body.
5.1.6. REDDISH CHANGES IN URINE:

"அருகத்துக்கு, கதையை அம்மியும் காண்கீலிடத் தூக்கியியல்களை குறிப்பிட்டே நிரலாயிரதையிடோ.

"நீண்டை சீர்த்து வாண்ணிப்பும் பக்கத்தில் பிள்ளையார் காரம்பிப்புக் குறிப்பிட்டே."  

"கற்பூக்கள் விளக்கமிடத் தன் விளம்பு குறிப்பிட்டே நிரலாயிரதையிடோ."  

Dark red colour of urine as that of rose flower may be observed in case of heated haematological systems and black and red colours admixed and frank red colours shows even more heated haematological systems.

5.1.7. GREENISH CHANGES IN URINE:

1. முக்கிய முக்கிய முக்கிய:  

"கடலின் தன்னால் கண்களையறி மற்றும் உள்ளேயென்று நிரலாயிரதையிடோ."  

Black coloured urine with slight greenish tinge in it,

2. முக்கிய முக்கிய முக்கிய:  

"உலகத் தன்னால் பரதம் புரித்து  

உலகத் தன்னால் புரித்து நிரலாயிரதையிடோ."  

Urine of sky colour indicates toxic state of the body along with coldness.

3. முக்கிய முக்கிய முக்கிய:  

"கடலின் தன்னால் கண்களையறி மற்றும் உள்ளேயென்று  

கடலின் தன்னால் பரதம் புரித்து நிரலாயிரதையிடோ."  

A sort of bluish tinge in urine caused by extreme coldness and also by Vatha dominant diseases occurring in children and elderly people.
Apart from being bluish tinged if it is also viscous indicating underlying derangement of the three humour the urine.

Urine appears frankly greenish as fresh foliage in diseases where all the humors are utterly deranged.

5.1.8. BLACKISH CHANGES IN URINE:

1. Kamalai condition: 

"Vanmich dinamkannam chakkala muthithu
kanthakam vinmethu kalamikkilin
vikithyam agupikiram scenes.

Black colour in a saffron colour background shows the Kamalai (Pitha disease) condition.

2. Saffron condition: 

"Amamperu virin sayamappam vilaielana
varinthalai vilamikal kudh pirip.

Saffron, block and little red coloured urine indicates a blood disorder

3. Greenish condition: 

"Kangkaram unamikam kaliyam vilaielana
agupikkalam unithi pirip.

Greenish in dark coloured urine indicates unhealthy blood
4. தீமுகாதல் வாதிய கிளையில் இருந்து காட்டுவது:

"அய்யவான நீருடைய வகையில் காட்டு இருப்பது நல்லும் இணைந்து வைத்து கொள்ளப்பட்டு காட்டுவதில் நீங்கும் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுvathatul

Dark and whitish colours in urine indicate upset of Vatha and pitha. Also it indicates chronic body heat disorders and complications of fevers in elderly and associated fainting.

5.1.9. WHITISH OR LIGHT COLOURED IN URINE:

1. முதல் எடுத்துக்காட்டு இருந்து காட்டுவது:

"நீங்கும் நீருடைய வகையில் காட்டு இருந்து கொள்ளப்பட்டு காட்டுவதில் நல்லும் இணைந்து கொள்ளப்பட்டு காட்டுvathatul

Whitish or clear urine is usually because of sheer coldness of the body this condition is not amenable to medical treatment. A patient to get over from this condition is as it where a person having a new lease of life drowned in the raging sea.

2. மூட்டும் எடுத்துக்காட்டு இருந்து காட்டுvathatul

"நீங்கும் நீருடைய வகையில் காட்டு இருந்து கொள்ளப்பட்டு காட்டுvathatul

In conditions of highly agitated ‘coldness’ of the body the urine is said to be not only highly clear but also little mucoid in appearance.

5.1.10.CHANGES IN THE DENSITY OF URINE:

"உயிரினத்துப்பொருள் கொண்டு வைத்து வைத்து கொள்ளப்பட்டு காட்டுvathatul

If the voided urine is denseless and crystal clear then it is due to excessive cold and to the melting of the kabam
5.1.11. ODOUR:

"தக்கட்டையில் சுழுச்சாக போக்கு குடும்பத்தின் விளைந்த கம்பியில் விளைக்காணும் கல்லாகிய குழுபாக்கியாட்டுகளைக் குறிப்பிடும்."

1. இந்துணர்ந்து பத்தைப்படுத்தும் விளைந்த விளக்கம்

"தமிழ் தக்கட்டையில் சுழுச்சாக போக்கு குடும்பத்தின் விளைந்த கம்பியில் விளைக்காணும் கல்லாகிய குழுபாக்கியாட்டுகளைப் பற்றிய விளக்கமாக குழுபாக்கியாட்டுகளைக் குறிப்பிடும்.

An urine sample with atrocious odour indicates ulceration in the urinary tract and bladder.

2. பொத்தையேறுந்து விளைந்த விளக்கம்

"பொத்தையேறுந்து விளைந்த விளக்கமாக குழுபாக்கியாட்டுகளைக் குறிப்பிடும்.

An urine sample with overwhelming odour of the tamarind to disorders of the body due to heat.

3. வெள்ளைத் தெய்வாராந்துவானது விளைந்த விளக்கம்

"வெள்ளைத் தெய்வாராந்துவானது விளைந்த விளக்கமாக குழுபாக்கியாட்டுகளைக் குறிப்பிடும்.

Urine descending with a sweet flavour implies an increased haemopoiesis in diseases like leukaemia.
4. பின்னர் காரணம் நிகழ்வு வரும் விளைவு

"தனத்து பின்னர் காரணமுடையதால்

காரணம் காரணமுடையவை விளைவு" 

Urine with a smell of dark coloured deer is voided in conditions of pitham dominance.

5. நியமப்பாதகம் நிகழ்வு வரும் விளைவு

"பூச்சிய் மனுஷர் குண்டுகள் பின்னர் பின்னர்

லங்காரசமாக அழுத்தம் குண்டுகளினை

அனுப்பு குண்டு வேலும் குண்டுகளை

நியமப்பாதகாக கிளைக்குள் குண்டு" 

Urine with a smell of fresh meat (carnivorous) will be in decreased body adipose tissue.

5.1.12. FROTH ON URINE

"புலம் புலம் புலம் புதுமையுடையதால்

சிறிய புலம் அதில் சிறிய புதுமை

சுருக்கும்போது கிளைக்குள் புலம்" 

When the greasiness of the body is melted, it gets associated with the urine in the gas form to cause froth in it. This greasiness of the body normally adds resilience and resistance to the body. In conditions of impending jaundice the froth appears to be multi coloured with yellow, block and coloured appearance. The quantum of froth gets reduced in conditions of reduced humours of the body.

Similarly, reduced urine output inspite of having normal intake of water throws light on impending anaemic disorders and associated lassitude.
5.2. NEIKKURI

Invoking the absolute reality who was assumed the form of gurupara, the lord facing south, seated in ayogic postura under the banyan tree, extolling the symbolic cinmudra by the very show of the right hand itself to the four sons of Brahmadeva, the chosen disciples lets us expond the formula of urine test us to get at the right clues for disease conditions without any doubt whatsoever as performed by our mystically intuited Siddha practitioners who have the command over the eight fold tests, without compounding one for the other, for the benefit of world at large.

5.2.1. "¿¢ÈìÌÈ¢ì ̨Ãò¾ ¿¢ÕÁ¡½ ¿£Ã¢ü
¿¢Èì¸ ¦Åñ¨½ö§Â¡÷ º¢ÕÐ
º¢Èì¸ ¦Åñ¨½ö§Â¡÷ º¢ÕÐ
º¢Èì¸ ¦Åñ¨½ö§Â¡÷ º¢ÕÐ
º¢Èì¸ "

The urine collected should follow the same procedure like the general examination of urine. A drop of oil is dropped on centre of bowl without any shake. It should be ensured that the sunlight falls on it, but it should not be disturbed by the wind. A keen observation with our knowledge on the oil drop suggests the condition of the patient.
5.2.2. GENERAL NATURE OF URINE IN OIL-EXAMINATION:

"அதுனை இளையவையாகிற மாறும்"

"ஆனை வடாய்வுகளை ஒருவும் பிடித்தும்"

"பக்கரமுது மீதுள் பயணப்பட்டுள்ள குழும்"

If the oil drop takes the shape of a snake, it indicates Vatha disease. if it spreads like a ring it indicates Pitha diseases and if it stands like a pearl it indicates Kapha diseases.

SHAPE OF THE OIL DROP IN COMBINED DERANGEMENT OF HUMOR:

"அதுனையும் அளவியும் அருவில்
அருவியும் சுருவும் அளவியும்
சுருவில் இடந்து எதுரில்காணியது"

If there is a combined shape like a ring in a snake or snake in the ring, snake and a pearl or a pearl in the ring, it indicates combined derangement of humors.

SIGNS OF THREE HUMORS:

"அறையும் அருவியும் அளவியும் அருவியும்
அருவியும் சுருவும் அளவியும்
சுருவில் இடந்து எதுரில்காணியது"

If the oil drop sinks in the urine and if all features of the three humors are seen together in the urine. It suggests derangement of all three humors.
5.2.3. SIGNS OF GOOD PROGNOSIS:

"அச்சுட்ச்சு உள்ளது அரியாகிறது
அச்சுட்சு உள்ளது முற்பெரும்பாக எந்த
அச்சுட்சு உள்ளது சுற்றுக்குடியடிக்." 

If the oil drop in the urine is round in shape and spreads gradually, it indicates good prognosis.

"அச்சுட்சு உள்ளது அரியாகிறது
அச்சுட்சு உள்ளது முற்பெரும்பாக எந்த
அச்சுட்சு உள்ளது சுற்றுக்குடியடிக்." 

"சத்யாங்கம் உள்ளது உலகச் சுற்று
சத்யாங்கம் உள்ளது உலகச் சுற்று
சத்யாங்கம் உள்ளது உலகச் சுற்று
சத்யாங்கம் உள்ளது உலகச் சுற்று
சத்யாங்கம் உள்ளது உலகச் சுற்று
சத்யாங்கம் உள்ளது உலகச் சுற்று" 

If the oil drop takes the shape like Conch, Throne, Umbrella, Yazh (a string instrument), a lotus flower, Jasmine bud suggests good prognosis.

SIGNS OF CURABILITY:

"சிறுசிறு தயார் சென்று
சிறுசிறு தயார் சென்று
சிறுசிறு தயார் சென்று
சிறுசிறு தயார் சென்று
சிறுசிறு தயார் சென்று
சிறுசிறு தயார் சென்று" 

If the oil drop in the urine spreads like Ritual fire, Human being, Fish, Temple corridors, Elephant it is curable.
SIGN OF CURABILITY:

Further, if the oil drop takes the shape like Hill, Umbrella, Tree, A fan made of fur, Lotus flower, the tusk of a wild elephant, Cap, Mirror, Conch Tapestry, Earth, lute and the square shaped house it is curable.

SIGN OF CURABILITY:

If it is in the shape of the leaf of bitter gourd, bee, buds of lotus and throne, the disease is curable.

5.2.4. SIGNS OF INTRACTABILITY:

"If there is a drop of oil, if it takes the shape of a hill, umbrella, tree, a fan made of fur, lotus flower, the tusk of a wild elephant, cap, mirror, conch tapestry, earth, lute and the square shaped house it is curable. If it is in the shape of the leaf of bitter gourd, bee, buds of lotus and throne, the disease is curable."
If the oil drop takes the shape of a drum, flag, pot, pig, jungle beast and potter’s wheel the cure is slow and with some difficulty.

5.2.5.SIGNs OF INCURABILITY:

“...”

If the oil drop takes the shape of an obese man, man with one, three or four legs, a headless body, or as if a person holding a dragger. Three headed spear, iron pestle boe and sword, and snake the prognosis is bad.

Further, if the oil drops takes the shape of a cat, mouse, arrow, crab, bottle gourd, hen, tiger, monkey, lion, horse, betel, creeper, bull and bear the prognosis is bad.

If the oil drop takes the shape of a bird scorpion tortoise or if it is non spreading or spreads very fast by if suggests bad prognosis.
If the gingely oil drop sinks in urine it indicates bad prognosis.

**SIGNS OF BAD PROGNOSIS:**

If the oil spreads fast or becomes small like a mustard or gets mixed completely with urine or sinks in urine, it suggests bad prognosis. Further if the oil drop takes the shape like Sword, Arrow, Iron pestle, Three headed spear, Pot, Betel leaf indicates bad prognosis.

If the oil drop takes the shape like Lion, Elephant, Tiger, Ram, PigMan, Tortoise, Bird, Fox, Monkey, Ass, Cat, Scorpion indicates bad prognosis.

**CURABLE AND INCURABLE STATES OF DISEASES:**

If the oil drop takes the shape of a sieve, it suggests Kapha diseases. According to *Gowthama*, it is incurable but others say it is curable.
5.2.6. HUMORAL (KUTTRAM) BASIS:

According to the Theriyar Neerkkuri Neikkuri Vathiyam,

Vatham

![Vatham Diagram]

Vatha pittam

![Vatha Pittam Diagram]

Vatha kabham

![Vatha Kabham Diagram]
Pittam

Pittavatham

Pittakabham
RENUAL CALCULI:

\DEFINITION:

A \textit{kidney stone}, also known as a \textit{renal calculus}.

In Latin \textit{ren-} "kidney" and \textit{calculus-} "pebble")

It is a solid concretion or crystal aggregation formed in the kidneys from dietary minerals in the urine. Kidney stones form when there is a decreased in urine volume and/or an excess of stone-forming substances in the urine. Dehydration from reduced fluid intake or strenuous exercise without adequate fluid replacement increases the risk of kidney stones.

In this regard, climate may be a risk factor for kidney stone development, since residents of hot and dry areas are more likely to become dehydrated and susceptible to stone formation.

Kidney stones can also result from infection in the urinary tract; these are known as struvite or infection stones.

Metabolic abnormalities, including inherited disorders of metabolism, can alter the composition of the urine and increase an individual's risk of stone formation.

LOCATION:

- \textbf{Urolithiasis} refers to stones originating anywhere in the urinary system, including the kidneys and bladder.
- \textbf{Nephrolithiasis} refers to the presence of such calculi in the kidneys.
- \textbf{Calyceal calculi} refers to aggregations in either the minor or major calyx, parts of the kidney that pass urine into the ureter.
- \textbf{Ureterolithiasis} refers to calculus or calculi are located in the ureter. Stones may also form or pass into the bladder, a condition referred to as \textit{Cystolithiasis}. 
CHEMICAL COMPOSITION:

- Calcium containing stones,
- Struvite stones,
- Uric acid stones,
- Other types.
CALCIUM CONTAINING STONES:

Calcium is one component of the most common type of human kidney stones, calcium oxalate. Some studies suggest that people who take supplemental calcium have a higher risk of developing kidney stones, and these findings have been used as the basis for setting the recommended daily intake (RDI) for calcium in adults.

Unlike supplemental calcium, high intakes of dietary calcium do not appear to cause kidney stones and may actually protect against their development. This is perhaps related to the role of calcium in binding ingested oxalate in the gastrointestinal tract.

As the amount of calcium intake decreases, the amount of oxalate available for absorption into the bloodstream increases; this oxalate is then excreted in greater amounts into the urine by the kidneys.

In the urine, oxalate is a very strong promoter of calcium oxalate precipitation, about 15 times stronger than calcium. In fact, current evidence suggests that the
consumption of diets low in calcium is associated with a higher overall risk for the development of kidney stones.

For most individuals however, other risk factors for kidney stones such as high intakes of dietary oxalates and low fluid intake probably play a greater role than that of calcium intake.

STRUVITE STONES:

About 10–15% of urinary calculi are composed of struvite (ammonium magnesium phosphate).

Struvite stones ("infection stones", urease or triple-phosphate stones), form most often in the presence of infection by urea-splitting bacteria. Using the enzyme urease, these organisms metabolize urea into ammonia and carbon dioxide.

This alkalinizes the urine, resulting in favorable conditions for the formation of struvite stones.

URIC ACID STONES:

About 5–10% of all stones are formed from uric acid. People with certain metabolic abnormalities, including obesity may produce uric acid stones.

Uric acid stones may form in association with conditions that cause hyperuricosuria(an excessive amount of uric acid in the urine) with or without hyperuricemia (an excessive amount of uric acid in the serum).

They may also form in association with disorders of acid/base metabolism where the urine is excessively acidic (low pH), resulting in precipitation of uric acid crystals.

A diagnosis of uric acid urolithiasis is supported by the presence of a radiolucent stone in the face of persistent urine acidity, in conjunction with the finding of uric acid crystals in fresh urine samples.
OTHER TYPES:

- People with certain rare inborn errors of metabolism have a propensity to accumulate crystal-forming substances in their urine.
- For example, those with cystinuria, cystinosis, and may form stones composed of cystine. People afflicted with xanthinuria often produce stones composed of xanthine.
- Urolithiasis has also been noted to occur in the setting of therapeutic drug use, with crystals of drug forming within the renal tract in some people currently being treated with agents such as indinavir, sulfadiazine and triamterene.

SYMPTOMS:

- Kidney stones typically leave the body by passage in the urine stream, and many stones are formed and passed without causing symptoms.
- If stones grow to sufficient size (usually at least 3 millimeters (0.12 in)) they can cause obstruction of the ureter.
- Ureteral obstruction causes postrenal azotemia and hydronephrosis (distension and dilation of the renal pelvis and calyces), as well as spasm of the ureter.
- This leads to pain, most commonly felt in the flank (the area between the ribs and hip), lower abdomen and groin (a condition called renal colic).

Renal colic can be associated with

- nausea,
- vomiting,
- fever,
- blood in the urine,
- pus in the urine,
- and painful urination.

Renal colic typically comes in waves lasting 20 – 60 minutes, beginning in the flank or lower back and often radiating to the groin or genitals.
**ABDOMINAL PAIN IN CALCIUM STONE**

- The most common symptom of calcium-based kidney stones is a sharp, stinging or cramp-like pain in the abdomen, back or side. This pain may occur in waves as a kidney stone passes through the urinary tract.
- Calcium kidney stones take on a variety of shapes and sizes and pain may vary with these parameters. Some calcium-containing stones may be large enough to block the urinary tract altogether, preventing the flow of urine and causing further pain and discomfort.

**ABDOMINAL PAIN IN STRUVITE STONES:**

- Struvite stones are typically associated with a burning-like abdominal pain, similar to pain of a kidney or urinary tract infection. The pain associated with a struvite stone may not be stinging and cramping like the pain associated with calcium stones.
- Struvite stone pain tends to be less localized, dull, burning and aching and less likely to come in waves of pain.

**BLOOD IN URINE:**

- As larger calcium-based kidney stones pass through the urinary tract, they can scrape and damage the inner lining of the urinary tract and cause bleeding.
- Struvite stones and an accompanying infection may damage the inner lining of the urinary tract and lead to the appearance of blood in the urine.

**FEVER, CHILLS AND NAUSEA:**

- Struvite stones are formed from magnesium and ammonia through the action of bacteria during a kidney infection or UTI.
- Struvite stone symptoms include
  - fever,
  - chills,
  - loss of appetite
  - and nausea.
DIAGNOSIS:

- The diagnosis of kidney stones is made on the basis of
- Information obtained from the history,
- Physical examination,
- Urinalysis,
- Radiographic studies,
- Ultrasound examination,
- and Blood tests.

IMAGING TECHNIQUES:

- Various imaging techniques are helpful in determining the presence of kidney stones. The best approach uses spiral (or helical) computed tomography scans.
- If these scans are not available, the patient will need
  - ultrasound or
  - standard x-rays.
- If no stones show up, but the patient has severe pain that suggests the presence of kidney stones, the next step is an intravenous pyelogram.

X-RAY:

A standard x-ray of the kidneys, ureters, and bladder may be a good first step for identifying stones, since many are visible on x-rays. Calcium stones can be identified on x-rays by their white color.

Cystine crystals can also show up on x-rays.

ULTRASOUND:

Ultrasound can detect clear uric acid stones and obstruction in the urinary tract.

It is not useful for finding very small stones.

INTRAVENTOUS PYELOGRAM:

In the procedure Intravenous pyelogram (IVP), the patient is injected with dye. X-rays are taken as the dye travels through the urinary tract.
This procedure is done to confirm the presence of kidney stones, although some stones may be too small to see.

SPIRAL (OR HELICAL) COMPUTED TOMOGRAPHY:

A type of computed tomography (CT) scan called a spiral or helical CT scan is currently the best method for diagnosing stones in either the kidneys or the ureters.

This test is fast, does not require instruments or foreign chemicals to enter the body, and provides detailed accurate images of even very small stones. If stones are not present, a spiral CT scan can often identify other causes of pain in the kidney area.

It is better than x-rays, ultrasound, and intravenous pyelogram -- the previous standard test for detecting kidney stones.
MAGNETIC RESONANCE IMAGING:

MRI techniques are showing promise for diagnosing urinary tract obstruction but do not yet accurately reveal small stones. Because no radiation is involved with MRI, however, it may prove to be a good option for pregnant women.

LABORATORY INVESTIGATIONS:

- **Microscopic examination of the urine**, which may show
  - red blood cells,
  - bacteria,
  - leukocytes,
  - urinary casts and crystals.
- **Urine Culture** to identify any infecting organisms present in the urinary tract and **Sensitivity** to determine the susceptibility of these organisms to specific antibiotics.
- **Complete Blood Count**(CBC), looking for neutrophilia (increased neutrophil granulocyte count) suggestive of bacterial infection, as seen in the setting of struvite stones.
- **Renal Function tests** to look for abnormally high blood calcium blood levels (hypercalcemia).
- **24 Hour Urine Collection** to measure total daily urinary volume, magnesium, sodium, uric acid, calcium, citrate, oxalate and phosphate.

**MANAGEMENT OF RENAL CALCULI:**

Stones which are smaller than 5mm can be treated with hydration and pain medication.

Stones longer than 5mm or stones that fail to pass are treated by Open surgical procedures.

ESWL – Extra corporeal shock wave lithotripsy for managing renal and uretral stones uses shock waves to fragment calculi.
6.3. URINE FORMATION

ANATOMY AND PHYSIOLOGY

6.3.1. INTRODUCTION

Kidney excretes the unwanted substances including metabolic end products and those substances, which are present in excessive quantities in the body, through urine.

Normally, about 1-1.5 litres of urine is formed every day. The mechanism of urine formation includes various processes. First, when blood passes through glomerular capillaries, the plasma is filtered into the Bowman’s capsule. When this filtrate passes through the tubular portion of the nephron, it undergoes various changes both in quality and in quantity. Many wanted substances like glucose, amino acids, water and electrolytes are reabsorbed from the tubules. This process is called tubular reabsorption and some unwanted substances are secreted into the tubule from peri tubular blood vessels. This process is called tubular secretion or excretion.

Thus, the urine formation includes the following three processes:

1. Glomerular filtration
2. Tubular reabsorption
3. Tubular secretion

Filtration is the function of the glomerulus or renal corpuscle of nephron and, reabsorption and secretion are the functions of tubular portion of the nephron.

6.3.2. GLOMERULAR FILTRATION:

When the blood passes through the glomerular capillaries, the plasma is filtered into the Bowman’s capsule. All the substances of the plasma are filtered except the plasma proteins. The filtered fluid is called glomerular filtrate. During filtration, the substances pass through three layers of structures namely:

1. The endothelium of glomerular capillary membrane
2. Basement membrane
3. Spaces between pedicles (fenestra) of epithelial cells of visceral layer of Bowman’s capsule.
The glomerular filtration is called ultra filtration because; even the minute particles are filtered. But, the plasma proteins are not filtered due to their large large molecular size. The protein molecules are larger than the slit pores present in the endothelium of capillaries. Thus, the composition of the glomerular filtrate is similar to that of plasma except in the absence of plasma proteins.

6.3.3. TUBULAR REABSORPTION:

When the glomerular filtrate passes through the tubular portion of nephron, both quantitative and qualitative changes occur. Large quantity of water (more than 99%), electrolytes and other substances are reabsorbed by the tubular epithelial cells. The substances, which are reabsorbed, pass into the interstitial fluid of renal medulla. And, from here, the substances move into the blood in peri tubular capillaries. As the substances are taken back into the blood, the entire process is called tubular reabsorption.

SELECTIVE REABSORPTION:

The tubular cells of kidney selectively reabsorb the substances present in the glomerular filtrate, according to the needs of the body. So, the tubular reabsorption is called the selective reabsorption. Depending upon the degree of reabsorption, the various substances are classified into 3 categories.

1. High threshold substances:

The substances like glucose, amino acids, acetoacetate ions and vitamins are completely reabsorbed and do not appear in urine under normal conditions.

2. Low threshold substances:

Urea, uric acid and phosphate are reabsorbed to a lesser extent.

3. Non threshold substances:

The metabolic end products like Creatinine are not at all reabsorbed and are excreted in urine irrespective of their level.
6.3.4. TUBULAR SECRETION:

In the process urine formation, some substances are also secreted into the lumen from the peritubular capillaries through the tubular epithelial cells. This is known as tubular secretion or tubular excretion.

Substances secreted in different segments of renal tubules

1. Potassium is secreted actively by sodium-potassium pump in distal convoluted tubule and collecting duct.

2. Ammonia is secreted in the proximal convoluted tubule.

3. Hydrogen ions are secreted in the proximal and distal convoluted tubules. Maximum hydrogen ion secretion occurs in proximal tubule.

Thus, by the processes of glomerular filtration, selective reabsorption and tubular secretion urine is formed in the nephron. It is also concentrated by counter current mechanism and ADH. Finally, it passes through ureter into the urinary bladder and, is stored there until is voided out.
6.3.5. COLLECTION OF URINE SAMPLE

TYPES OF COLLECTION:

Laboratory urine specimens are classified by the type of collection conducted or by the collection procedure used to obtain the specimen.

1. RANDOM SPECIMEN:
   - Specimen most commonly sent to the laboratory for analysis,
   - Usually submitted for urinalysis and microscopic analysis,
   - Pediatric specimens are generally of this type.
   - Can be collected at any time.

2. FIRST MORNING SPECIMEN:
   - Also called an 8-hour specimen.
   - The first morning specimen is collected when the patient first wakes up in the morning, having emptied the bladder before going to sleep.
   - Since the urine can be collected over any eight-hour period, collection is practical for patients who have atypical work/sleep schedules.
3. MIDSTREAM CLEAN CATCH SPECIMEN:

- This is the preferred type of specimen for culture and sensitivity testing
- Because of the reduced incidence of cellular and microbial contamination.
- Patients are required to first cleanse the urethral area with a castile soap towel.
- The patient should then void the first portion of the urine stream into the toilet.
- These first steps significantly reduce the opportunities for contaminants to enter into the urine stream.
- The urine midstream is then collected into a clean container
- This method of collection can be conducted at any time of day or night.

4. TIMED COLLECTION SPECIMEN:

- 24 hour specimen
- Among the most commonly performed tests requiring timed specimens
- Measuring Creatinine, urine urea nitrogen, glucose, sodium, potassium, or analytes such as catecholamine and 17-hydroxysteroids that are affected by diurnal variations

5. CATHETER COLLECTION SPECIMEN:

- when a patient is bedridden
- Insert a Foley catheter into the bladder through the urethra to collect the urine specimen.
- Collected directly from a Foley into an evacuated tube or transferred from a syringe into a tube or cup.

6. SUPRAPUBIC ASPIRATION SPECIMEN:

- When a bedridden patient cannot be catheterized or a sterile specimen is required.
- The urine specimen is collected by needle aspiration through the abdominal wall into the bladder
7. PEDIATRIC SPECIMEN:

For infants and small children,

- A special urine collection bag is adhered to the skin surrounding the urethral area.
- The urine is poured into a collection cup or transferred directly into an evacuated tube with a transfer straw.
- Urine collected from a diaper is not recommended

6.3.6. URINE COLLECTION PRODUCTS:

URINE COLLECTION CONTAINERS:

- Variety of shapes and sizes with lids.
- To protect healthcare personnel from exposure to the specimen
- protect the specimen from exposure to contaminants,
- Leak-resistant cups should be utilized.
- Some urine transport cup closures have special access ports that allow closed-system transfer of urine directly from the collection device to the tube.

6.3.7. PRESERVATIVES:

- should be added to the collection container before the urine collection begins
- Warning labels should be placed on the container.
- The least hazardous one should be selected.
- Some common 24-hour preservatives are hydrochloric acid, boric acid, acetic acid and toluene.

6.3.8. VOLUME:

Adults normally 700-2500ml (1200ml) of urine is passed in 24 hours.

Infants-300ml

1. POLYURIA:

When excess of urine is passed in 24 hours (>2500ml).
Causes of transient polyuria:

- Excessive intake of fluids
- Anxiety
- During convalescence esp., after fever
- Recovery from oedema
- diuretics
- Diabetes mellitus
- Diabetes insipidus
- Chronic nephritis
- Arteriosclerosis.

2. OLIGURIA

When less than 500ml of urine is passed in 24 hours.

Causes:

- Acute and sub acute nephritis
- Diarrhoea/vomiting
- Fever
- Hypotension
- Congestive cardiac failure
- Obstruction to the urinary passage.
- Acute renal failure.

3. ANURIA:

When there is almost complete suppression of urine (<150ml) in 24 hours.

Pre Renal Causes:

- Non obstructive type
- Hypotension
Renal Causes:

- Obstructive type
- Acute nephritis
- TB of both the kidneys
- Polycystic kidney.
- Pyelonephritis
- Black water fever
- Incompatible blood transfusion
- Intravascular haemolysis
- Poisoning by turpentine, cantharides.

Post Renal Causes:

- Calculi in the urinary passage
- Carcinoma of ureteral orifice
- Carcinoma of uterus infiltrating both the ureters
- Pelvic or abdominal tumours.

NOCTURIA:

When excess of urine is passed during night time (>500ml).
6.3.9. COLOUR:

Normally urine is clear, pale or straw coloured.

1. COLOURLESS URINE:

- Diabetes mellitus
- Diabetes insipidus
- Excess intake of water.

2. ORANGE COLOUR URINE:

- Increased urobilinogen.
- Concentrated urine.
- Jaundice.
3. RED COLOUR URINE:

- Haematuria
- Haemoglobinuria

4. GREEN COLOUR URINE:

- Putrified sample.
- Phenol poisoning.
- Administration of carbolic acid.
5. BLUE COLOUR URINE:
Administration Of Methylene

6. MILKY URINE:
- Pus
- Fat
- UTI infection

6.3.10. ODOUR OF URINE:
Normally urine has faint aromatic odour.
OTHER ODOUR OF URINE:

PUNGENT

It due to ammonia produced by bacterial contamination.

PUTRID:

It due to UTI.

FRUITY:

It due to ketoacidosis.

6.3.11.REACTION/PH:

It reflects ability of the kidney to maintain h+ ions concentration in extra cellular fluid and plasma. It can be measured by PH indicator paper or by electronic PH meter.

Normal PH range 4.6-7 (average-6.0).

Much of the variation is due to diet.

High protein diets - more acidic urine.

vegetarian diets - more alkaline urine

(Both within the typical range 4.6 – 8

DIGITAL PH METER:
LITMUS PAPER

METHOD:

4% Alcoholic solution of methyl red + 5ml of urine.

Red colour acidic
Orange neutral
Yellow alkaline.

6.3.12. SPECIFIC GRAVITY

This is the ratio of 1 ml volume of urine to that of weight of 1 ml of distilled water. It depends upon the concentration of various particles/solutes in the urine. Specific gravity is used to measure the concentrating and diluting power of the kidney.

Urinometer
Normal specific gravity 1.003-1.030  
Neonates-1.012  
It can be used be measured by  
Refractometer  
Urinometer  
Reagent strips.

1. Low Specific gravity  
- Diabetes insipidus  
- Chronic renal diseases  
- Acute tubular necrosis  
- Interstitial nephritis

2. High specific gravity:  
- Fever  
- Dehydration  
- Albuminuria  
- Hematuria  
- CCF  
- Acute nephritis  
- Diabetes mellitus

6.3.12. COMPOSITION OF URINE:  
Approx. 95% of the volume of normal urine is due to water.  
The other 5% consists of solutes

**ORGANIC MOLECULES:**  
- Urea  
- Creatinine  
- Uric acid  
- Ammonia  
- Purine bodies

**INORGANIC MOLECULES:**  
- Sodium  
- Potassium  
- Chloride  
- Magnesium
- Calcium
- Ammonium
- Phosphates

**UREA EXCRETION INCREASED IN:**
- High intake of protein diet
- Fever
- Diabetes mellitus
- Convalescence
- Poisoning like phosphorus and arsenic

**UREA EXCRETION DIMINISHED IN:**
- Starvation
- Chronic kidney diseases
- Liver cirrhosis

**URIC ACID EXCRETION INCREASED IN:**
- Myeloid leukaemia
- Acute fever
- Pneumonia
- Liver diseases

**URIC ACID EXCRETION DECREASED IN:**
Quinine administration

**CREATININE EXCRETION INCREASED IN:**
- Pneumonia
- Typhoid
- Tetanus

**CREATININE EXCRETION DECREASED IN:**
- Anaemia
- Leukemia
- Thyrotoxicosis
- Advanced degeneration of kidney and liver
- Muscular atrophy
AMMONIA EXCRETION INCREASED IN:

- Ketosis
- Delayed chloroform poisoning
- Severe vomiting of pregnancy
- Liver cirrhosis.

6.3.13. CHEMICAL EXAMINATION:

Routine chemical examination of urine

- Protein
- Sugar
- Ketone bodies
- Occult blood
- Bile pigment
- Bile salt
- Urobilinogen

I. Test for Protein:

- Heat coagulation test
- Sulphosalicylic acid test
- Heller’s test

II. Test for Sugar:

- Fehling’s test
- Benedict’s test

III. Test for Ketone Bodies:

- Rothera’s test

IV. Test for Occult Blood:

- Guaiacum test
- Haematrix test

V. Test for Bile Pigments:

- Fouchet’s test
- Gmelin’s test
HAEMATURIA:

- Appearance of blood in urine
- Renal causes
- Nephritis
- Tuberculosis of kidney
- Hydronephrosis
- Malignancy
- Calculus

6.4. SESAME OIL:

Sesame oil (also known as gingelly oil or tir oil) is an edible vegetable oil derived from sesame seeds.

The oil from the nutrient rich seed is popular in alternative medicine-from traditional massages and treatments to modern day fads. Ancient Indian medical system perceives sesame oil to pacify stress related symptoms and on-going research indicates that the rich presence of anti-oxidants and poly-unsaturated fats in sesame oil could help in controlling blood pressure.

6.4.1. History:

Sesame seeds were one of the first crops processed for oil as well as one of the earliest condiments. In fact, the word ‘ennai’ that means oil in Tamil language has its roots in the Tamil words EL and NEI which mean sesame and fat.

6.4.2. ORGANIC SESAME OIL PROFILE:

- Botanical Name - Sesame indicum
- Origin - Mexico
- Extraction - Expeller Pressed/Unrefined
- Shelf life - 1 year

6.4.3. Specifications:

- Colour - Golden brown
- Odour - Nutty
Free fatty acids – 0.79%
Peroxide value- 1.26
Moisture-0.01%
Iodine value-109.8
Specific gravity-0.98
PH – 4.26

6.4.4. FATTY ACIDS:

Linoleic – 44.91%
Oleic – 41.45%
Stearic-4.06%
Palmitic -7.83%

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<th>Nutritional value per 100 g (3.5 oz)</th>
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<td>Energy</td>
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<td>Carbohydrate</td>
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7. MATERIALS AND METHODS

“A STUDY ON NEERKKURI NEIKKURI DIAGNOSTIC METHODOLOGY IN KALLADAIPPU-RENAL CALCULI” would be carried out in the Out patients and In Patients Noi Naadal Department of Ayothidoss Pandithar Hospital of the National Institute of Siddha, Tambaram Sanatorium, and Chennai 47.

7.1. POPULATION SAMPLE:

Out of the 80 cases screened, 40 diagnosed cases will be selected from the outpatient department and 20 normal subjects screened, 10 normal subjects will be selected from the study followed under the supervision of the HOD and Lecturers of the Noi Naadal Department.

7.2. SAMPLE SIZE:

| Normal Healthy Volunteers | 10 |
| Kalladaippu patients       | 40 |
| Total                      | 50 |

7.3. SELECTION OF CASES:

Selection of cases is based on the screening of patient population as per the inclusion and exclusion criteria listed out in the Screening Proforma.

The patient population consists of patients attending the OPD/IPD of Ayothidoss Pandithar Hospital of National Institute of Siddha, Chennai.

7.4. STUDY PERIOD: one year

7.5. INCLUSION CRITERIA:

1. Age -20 to 60 years
3. Presence of Renal stone detected by Ultrasonogram.

7.6. EXCLUSION CRITERIA:

1. Co-existing other kidney diseases.
2. Other major systemic illness.
6.7. METHODOLOGY

METHODOLOGY

PATIENT SCREENED (INCLUSION & EXCLUSION CRITERIA)

HEALTHY VOLUNTEERS

INVESTIGATIONS

SATISFIED

NOT SATISFIED

INFORMED ABOUT THE STUDY (INFORMATION SHEET)

EXCLUDED FROM THE STUDY

GETTING CONSENT (CONSENT FORM)

NORMAL OPD TREATMENT GIVEN

REGISTRATION CARD GIVEN AND SUBJECTED TO

CLINICAL ASSESSMENT

LABORATORY INVESTIGATIONS

HISTORY TAKEN

NEERKKURI NEIKURI
7.8. EVALUATION OF CLINICAL PARAMETERS:

During examination, the cases were subjected to careful enquiry, which involved history taking and evaluate the siddha parameters and modern parameters.

7.9. SIDDHA PARAMETERS:

The seven body components (Udal thathukal)
Trihumoural theory (Mukkutram)
The eight-fold examination (Ennvagai thervu)
Naa
Niram
Mozhi
Vizhi
Malam
Moothiram (Neerkkuri and neikkuri)
Sparisam
Naadi
Wrist circummetric sign (Manikadai Nool),
Habitat (Nilam),
Season (Kaalam)
Astrology (Sothidam) Of the patient would be assessed.

7.9. 1 NEERKKURI NEIKKURI PROCEDURE

7.9.1.A. PREPARATION OF THE PATIENT:

DIET PATTERN:

Quality- balanced food with appropriate proportion of all six tastes
Quantity- upto the level of his appetite
SLEEP PATTERN

Sound sleep

7.9.1.B. METHOD OF URINE COLLECTION:

The mid stream urine should be collected in a sterilized container and it should be closed tightly.

7.9.1. C. NEERKKURI PROCEDURE:

In Neerkkuri, five physical properties of the urine should be noted.

They are

**Colour:**

The colour of the urine should be noted with naked eye and the photos of the colour are documented.

**Odour:**

The odour of the urine should be noted.

**Froth:**

The patient should be enquired whether the froth present are not in the urine, immediately after collecting the mid stream urine.

**Density:**

Density of the urine should be measured by using urinomete

**Deposits and volume:**

24 hours urine should be collected in the urinary container and the volume of the urine is noted.

7.9.1.D. **pH OF THE URINE:**

The pH of urine is measured by using the digital ph metre.
7.9.1.E NEIKKURI PROCEDURE:

I. SOURCE OF OIL:

Oil will be procured from mill as freshly ground gingely seeds in stone grinder (chekku) without any additives being added to avoid variations in the reactions.

Because the presently marketed Gingely oils are treated with additives for which the reason I have chosen the above method of additive free preparation.

II. SELECTION OF BOWL:

I have selected a glass bowl quantity of 200 ml with wide neck.

III. SELECTION OF STICK:

Coconut mid rib.

IV. METHOD OF OIL INSTILLING:

Distance between the bowl& the oil stick is 3-4 cm. below 3cm, the stick may touch the bowl. Above 5cm, the oil may be dispersed due to air or it may cause ripples over the surface of the urine sample interfering with the results of the examination.

A drop of oil is dropped on centre of bowl without any shake. It should be ensured that the sunlight should fall on it, but it should not be disturbed by the wind.

The above Neikkuri procedure is repeated (except physical and chemical urine analysis) for next two consecutive days.

V. OBSERVATION AND DOCUMENTATION OF NEIKKURI:

A keen observation with our knowledge on the oil drop suggests the condition of the patient and photos will be documented with standard Digital imaging.

5 slides of picture will be taken

1. 1 minute after dropping of oil.
2. After 3 minutes.
3. After 5 minutes.
4. After 7 minutes.
5. After 10 minutes.
7.10. MODERN PARAMETERS:

1. BLOOD:
   - Haemogram
   - Hb
   - ESR
   - RBC
   - TC
   - DC
   - Platelet count
   - Blood sugar
   - Urea
   - Creatinine
   - Cholesterol
   - HDL
   - LDL
   - VLDL
   - Alkaline phosphatase
   - Triglycerides

2. URINE:
   - Albumin
   - Sugar
   - Acetone
   - Bile salt
   - Urobilinogen
   - Occult blood
   - Urine deposits (Pus cells, epithelial cells, RBC, Crystals).
   - pH
   - Specific gravity

3. MOTION TEST:
   - Ova
   - Cyst
   - Occult blood

4. OTHERS:
   - USG- ABDOMEN
   - X-RAY-KUB
7.11. DATA MANAGEMENT

After enrolling the patient in the study, a separate file for each patient were beopened and all forms were filed in the file. Patient No. were entered on the top of file for easy identification and arranged in a separate rack at the concerned OPD unit. Whenever study patient visits OPD during the study period, the respective patient file were taken and necessary recordings were made at the case record form or other suitable form.

The Data recordings were monitored for completion and compliance of patients by HOD.

Any missed data found in during the study, it were collected from the patient, but the time related data were not be recorded retrospectively

All collected data were entered using MS access/ excel software onto computer.Investigators were trained to enter the patient data and cross checked by SRO.

7.12. STATISTICAL ANALYSIS

All collected data were entered into computer using MS Access / MS Excel Software by the investigator .The data were analysed using STATA Software under the guidance of SRO (stat) ,NIS .The level of significance were be 0.05.

Descriptive analysis were made and necessary tables / graphs generated to understand the profile of patients included in the study .The Statistical analysis for significance of different diagnostic Neerkkuri –Neikkuri were done . Student ‘t’ test and chi-square test , are proposed to be performed for quantitative and qualitative data.
7.13. ETHICAL ISSUE:

- To prevent any infection, while collecting blood sample from the patient, only disposable syringes, disposable gloves, with proper sterilization of lab equipments were used.
- Normal treatment procedure followed in NIS will be prescribed to the study patients. There were no infringement on the rights of patient.
- The data collected from the patient were kept confidentially. The patient were informed about the diagnosis.
- Informed consent were obtained from the patient explaining in the understandable language to the patient.
- This study involves only the performing investigations and No other investigation (not mentioned in the protocol) would be done.
OBSERVATION AND RESULTS

KALLADAIPPU PATIENTS:
AGE DISTRIBUTION OF STUDY SAMPLE:

<table>
<thead>
<tr>
<th>S.No</th>
<th>Age</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20-40 Yrs</td>
<td>21</td>
<td>52.5%</td>
</tr>
<tr>
<td>2.</td>
<td>41-50 Yrs</td>
<td>13</td>
<td>32.5%</td>
</tr>
<tr>
<td>3.</td>
<td>51-60 Yrs</td>
<td>6</td>
<td>15%</td>
</tr>
<tr>
<td>4.</td>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

PATIENTS
Observation:
Among 40 cases, 15% of cases came under 51-60 yrs, 32.5% of cases came under 41-50 yrs and 52.5% of cases came under 20-40yrs.

Inference:
Majority of diseased cases (52%) in the study were of 20-40yrs.

DISTRIBUTION OF GENDER:

<table>
<thead>
<tr>
<th>S.No</th>
<th>Gender</th>
<th>Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Female</td>
<td>15</td>
<td>37.5%</td>
</tr>
<tr>
<td>2.</td>
<td>Male</td>
<td>25</td>
<td>62.5%</td>
</tr>
<tr>
<td>3.</td>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Observation:
Among 40 cases, 37.5% of cases were females, 62.5% of cases were males.

Inference:
In the study males are more affected than females.
KAALAM DISTRIBUTION:

<table>
<thead>
<tr>
<th>S .No</th>
<th>Kaalam</th>
<th>Patients</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vatha kaalam (0 -33 yrs)</td>
<td>6</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Pitha kaalam (34- 66 yrs)</td>
<td>34</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Kaba kaalam (67-100 yrs)</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Total</td>
<td>40</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Observation:

Among 40 cases, 85% of cases came under Pitha kaalam ie.., 34-66yrs, 15% of cases fall under Vatha kaalam 0-33yrs.

Inference:

In the study majority of the patients under in Pitha kaalam.
NAADI (PULSE):

<table>
<thead>
<tr>
<th>S.No</th>
<th>Naadi</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vathapitham</td>
<td>12</td>
<td>30%</td>
</tr>
<tr>
<td>2.</td>
<td>Pithavatham</td>
<td>28</td>
<td>70%</td>
</tr>
<tr>
<td>3.</td>
<td>Kabapitham</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>4.</td>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Observation:

Among 40 cases, 30% of cases had the naadinadai of Vatha pitham, 70% cases had Pitha vatham, 0% of cases had Kaba pitham.

Inference:

Most of the cases had Pithavatha Naadi.
COLOUR OF URINE:

<table>
<thead>
<tr>
<th>S.No</th>
<th>Urine colour</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Straw colour</td>
<td>9</td>
<td>22.5%</td>
</tr>
<tr>
<td>2.</td>
<td>Straw Yellow colour</td>
<td>28</td>
<td>70%</td>
</tr>
<tr>
<td>3.</td>
<td>Dark yellow colour</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>4.</td>
<td>Colourless</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>5.</td>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Observation:

Among 40 cases, the colour of the urine were 2.5% colourless urine, 22.5% straw colour urine, 70% straw yellow colour urine and 5% dark yellow colour urine.

Inference:

In most of the cases, the colour of the urine observed were straw yellow colour.
ODOUR OF URINE:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Odour</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Aromatic</td>
<td>16</td>
<td>40%</td>
</tr>
<tr>
<td>2.</td>
<td>Ammoniacal</td>
<td>22</td>
<td>55%</td>
</tr>
<tr>
<td>3.</td>
<td>putrid</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>4.</td>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Observation:

Among 40 cases, 40% of cases had aromatic odour in urine, 55% had ammonical odour, and remaining 5% putrid odour.

Inference:

In most of the cases, the odour of the urine observed were ammoniacal odour.
SPECIFIC GRAVITY:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Specific gravity</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.003-1.010</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>2.</td>
<td>1.011-1.015</td>
<td>12</td>
<td>30%</td>
</tr>
<tr>
<td>3.</td>
<td>1.016-1.020</td>
<td>23</td>
<td>57.5%</td>
</tr>
<tr>
<td>4.</td>
<td>1.021-1.025</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>5.</td>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Observation:

Among 40 cases, 7.5% cases had their specific gravity between 1.003-1.010, 30% had specific gravity between 1.011-1.015, 57.5% had specific gravity between 1.016-1.020 and 5% had specific gravity between 1.021-1.025.

Inference:

In most of the cases, the specific gravity of the urine observed was 1.016 – 1.020.
**Observation:**

Among 40 cases, 87.50% cases had no froth and remaining 12.50% had froth in urine.

**Inference:**

In most of the cases, the froth is absent in the urine. The result which is obtained were normal.
VOLUME OF URINE:

<table>
<thead>
<tr>
<th>Volume</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>500ml-1 lit</td>
<td>22</td>
<td>55%</td>
</tr>
<tr>
<td>1.1-1.5lit</td>
<td>15</td>
<td>37.5%</td>
</tr>
<tr>
<td>1.6-2lit</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Observation:

Among 40 cases 55% of cases passed 500ml -1000 ml of urine per day, 37.5% of cases passed 1.1-1.5 lit per day and remaining 7.5% of cases passed 1.6-2lit per day

Inference:

In most of the cases, the volume of the urine passed per day were 500-1000ml.
**DIFFERENT RANGE OF P<sub>H</sub> :**

<table>
<thead>
<tr>
<th>P&lt;sub&gt;H&lt;/sub&gt;</th>
<th>No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1-6</td>
<td>11</td>
<td>27.5%</td>
</tr>
<tr>
<td>6.1-7</td>
<td>15</td>
<td>37.5%</td>
</tr>
<tr>
<td>Above 7</td>
<td>14</td>
<td>35%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Observation:**

Among 40 cases, 27.5% of cases had P<sub>H</sub> between 5.1-6, 37.5% of cases had P<sub>H</sub> between 6.1-7 and remaining 35% of cases had P<sub>H</sub> above 7.

**Inference:**

In most of the cases, the P<sub>H</sub> value of the urine was observed between 6.1-7.
## DAY 1

<table>
<thead>
<tr>
<th>NEIKKURI SHAPE</th>
<th>1 MIN</th>
<th>3 MIN</th>
<th>7 MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
</tr>
<tr>
<td>COIN</td>
<td>26</td>
<td>65%</td>
<td>23</td>
</tr>
<tr>
<td>VACUOLATED SIEVE</td>
<td>5</td>
<td>12.5%</td>
<td>6</td>
</tr>
<tr>
<td>SEED</td>
<td>0</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>KIDNEY</td>
<td>1</td>
<td>2.5%</td>
<td>2</td>
</tr>
<tr>
<td>PEARL</td>
<td>4</td>
<td>10%</td>
<td>3</td>
</tr>
<tr>
<td>EGG</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>LEAF</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>CIRCLE</td>
<td>3</td>
<td>7.5%</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
</tr>
</tbody>
</table>

![Graph showing the distribution of NEIKKURI SHAPE over time](image-url)
Observation:

Among 40 cases, the shape of the Neikkuri in one minute, 65% of cases had coin shape, 7.5% of cases had circular, 12.5% of cases had vacuolated sieve, 2.5% of cases had kidney shape and 10% of cases had pearl shape.

In three minutes observation, 57.5% of cases had coin shape, 7.5% of cases had pearl, 15% of cases had vacuolated sieve, 5% of cases had kidney shape and 2.5% of cases had pearl shape.

In seven minutes observation, 52.5% of cases had coin shape, 5% of cases had pearl, 27.5% of cases had vacuolated sieve, 2.5% had leaf, 5% of cases had egg and 2.5% of cases had circular.

Inference:

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
<table>
<thead>
<tr>
<th>NEIKKURI SHAPE</th>
<th>1 MIN</th>
<th></th>
<th>3 MIN</th>
<th></th>
<th>7 MIN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
<td>PERCENT</td>
</tr>
<tr>
<td>COIN</td>
<td>23</td>
<td>57.5%</td>
<td>17</td>
<td>42.5%</td>
<td>10</td>
<td>25%</td>
</tr>
<tr>
<td>PEARL</td>
<td>7</td>
<td>17.5%</td>
<td>3</td>
<td>7.5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>VACUOLATED SIEVE</td>
<td>4</td>
<td>10%</td>
<td>11</td>
<td>27.5%</td>
<td>18</td>
<td>45%</td>
</tr>
<tr>
<td>CIRCLE</td>
<td>2</td>
<td>5%</td>
<td>1</td>
<td>2.5%</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>LEAF</td>
<td>1</td>
<td>2.5%</td>
<td>2</td>
<td>5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>KIDNEY</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>BOTTLE GOARD</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>EGG</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>OVAL</td>
<td>0</td>
<td>0%</td>
<td>3</td>
<td>7.5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>
Observation:

Among 40 cases, the shape of the Neikkuri in one minute, 57.5% of cases had coin shape, 5% of cases had circular, 10% of cases had vacuolated sieve, 2.5% had bottle gourd, 2.5% had leaf, 2.5% had egg, 2.5% of cases had kidney shape and 17.5% of cases had pearl shape.

In three minutes, 42.5% of cases had coin shape, 7.5% of cases had pearl, 27.5% of cases had vacuolated sieve, 2.5% had bottle gourd, 5% had leaf, 2.5% had egg, 2.5% of cases had kidney shape and 2.5% of cases had circular.

In seven minutes, 25% of cases had coin shape, 5% of cases had pearl, 45% of cases had vacuolated sieve, 2.5% had bottle gourd, 5% of cases had egg, 5% had oval and 7.5% of cases had circular.

Inference:

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
<table>
<thead>
<tr>
<th>NEIKKURI SHAPE</th>
<th>1 MIN</th>
<th></th>
<th>3 MIN</th>
<th></th>
<th>7 MIN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
<td>PERCENT</td>
</tr>
<tr>
<td>COIN</td>
<td>20</td>
<td>50%</td>
<td>12</td>
<td>30%</td>
<td>13</td>
<td>32.5%</td>
</tr>
<tr>
<td>WORM</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>PEARL</td>
<td>7</td>
<td>17.5%</td>
<td>2</td>
<td>5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>OVAL</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>5%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>VACUOLATED SIEVE</td>
<td>5</td>
<td>12.5%</td>
<td>15</td>
<td>37.5%</td>
<td>20</td>
<td>50%</td>
</tr>
<tr>
<td>CIRCLE</td>
<td>1</td>
<td>2.5%</td>
<td>2</td>
<td>5%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>LEAF</td>
<td>0</td>
<td>0%</td>
<td>3</td>
<td>7.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>KIDNEY</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>EGG</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>5%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>
Observation:

Among 40 cases, the shape of the Neikkuri in one minute, 50% of cases had coin shape, 2.5% of cases had circular, 12.5% of cases had vacuolated sieve, 2.5% had worm and 17.5% of cases had pearl shape.

In three minutes, 30% of cases had coin shape, 5% of cases had pearl, 37.5% of cases had vacuolated sieve, 2.5% had worm, 5% had oval, 7.5% had leaf, 5% had egg, 2.5% of cases had kidney shape and 5% of cases had circular.

In seven minutes, 32.5% of cases had coin shape, 5% of cases had pearl, 50% of cases had vacuolated sieve, 2.5% of cases had egg, 5% had kidney and 2.5% of cases had circular.

Inference:

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
GROUP 1 :(Renal calculi size <4MM)

<table>
<thead>
<tr>
<th>NEIKKURI SHAPE</th>
<th>1 MIN</th>
<th>3 MIN</th>
<th>7 MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
</tr>
<tr>
<td>coin</td>
<td>7</td>
<td>38.5%</td>
<td>6</td>
</tr>
<tr>
<td>Vacuolated sieve</td>
<td>3</td>
<td>16.5%</td>
<td>4</td>
</tr>
<tr>
<td>pearl</td>
<td>2</td>
<td>11%</td>
<td>1</td>
</tr>
<tr>
<td>circular</td>
<td>2</td>
<td>11%</td>
<td>3</td>
</tr>
<tr>
<td>kidney</td>
<td>1</td>
<td>5.5%</td>
<td>2</td>
</tr>
<tr>
<td>leaf</td>
<td>1</td>
<td>5.5%</td>
<td>1</td>
</tr>
<tr>
<td>Bottle guard</td>
<td>1</td>
<td>5.5%</td>
<td>1</td>
</tr>
<tr>
<td>egg</td>
<td>1</td>
<td>5.5%</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
<td><strong>100%</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>
Observation:

Among 40 cases, 18 came under group 1(<4mm), the shape of the Neikkuri in one minute, 38.5% of cases had coin shape, 11% of cases had circular, 16.5% of cases had vacuolated sieve, 5.5% of cases had kidney shape, 5.5% had leaf, 5.5% had bottle guard, 5.5% had egg and 11% of cases had pearl shape.

In three minutes, 33% of cases had coin shape, 16.5% of cases had circular, 22% of cases had vacuolated sieve, 11% of cases had kidney shape, 5.5% had leaf, 5.5% had bottle guard and 5.5% of cases had pearl shape.

In seven minutes, 44% of cases had coin shape, 11% of cases had circular, 27.5% of cases had vacuolated sieve, 5.5% had leaf and 11% of cases had pearl shape.

Inference:

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
<table>
<thead>
<tr>
<th>NEIKKURI SHAPE</th>
<th>1 MIN</th>
<th>3 MIN</th>
<th>7 MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
</tr>
<tr>
<td>coin</td>
<td>4</td>
<td>22%</td>
<td>5</td>
</tr>
<tr>
<td>Vacuolated sieve</td>
<td>6</td>
<td>33%</td>
<td>8</td>
</tr>
<tr>
<td>pearl</td>
<td>1</td>
<td>5.5%</td>
<td>2</td>
</tr>
<tr>
<td>circular</td>
<td>3</td>
<td>16.5%</td>
<td>2</td>
</tr>
<tr>
<td>kidney</td>
<td>2</td>
<td>11%</td>
<td>0</td>
</tr>
<tr>
<td>leaf</td>
<td>1</td>
<td>5.5%</td>
<td>1</td>
</tr>
<tr>
<td>Bottle guard</td>
<td>1</td>
<td>5.5%</td>
<td>0</td>
</tr>
<tr>
<td>egg</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>100%</td>
<td>18</td>
</tr>
</tbody>
</table>
Observation:

Among 40 cases, 18 came under group 1(<4mm), the shape of the Neikkuri in one minute, 22% of cases had coin shape, 16.5% of cases had circular, 33% of cases had vacuolated sieve, 11% of cases had kidney shape, 5.5% had leaf, 5.5% had bottle guard and 5.5% of cases had pearl shape.

In three minutes, 27.5% of cases had coin shape, 11% of cases had circular, 44% of cases had vacuolated sieve, 5.5% had leaf, and 11% of cases had pearl shape.

In seven minutes, 38.5% of cases had coin shape, 11% of cases had circular, 16.5% of cases had vacuolated sieve, 5.5% had kidney, 5.5% had bottle guard, 5.5% had egg, 5.5% had leaf and 11% of cases had pearl shape.

Inference:

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
<table>
<thead>
<tr>
<th>NEIKKURI SHAPE</th>
<th>1 MIN</th>
<th></th>
<th>3 MIN</th>
<th></th>
<th>7 MIN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
<td>PERCENT</td>
</tr>
<tr>
<td>coin</td>
<td>3</td>
<td>16.5%</td>
<td>5</td>
<td>27.5%</td>
<td>4</td>
<td>22%</td>
</tr>
<tr>
<td>Vacuolated sieve</td>
<td>7</td>
<td>38.5%</td>
<td>5</td>
<td>45.5%</td>
<td>6</td>
<td>33%</td>
</tr>
<tr>
<td>pearl</td>
<td>2</td>
<td>11%</td>
<td>2</td>
<td>11%</td>
<td>1</td>
<td>55%</td>
</tr>
<tr>
<td>circular</td>
<td>1</td>
<td>5.5%</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>11%</td>
</tr>
<tr>
<td>kidney</td>
<td>1</td>
<td>5.5%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>5.5%</td>
</tr>
<tr>
<td>leaf</td>
<td>1</td>
<td>5.5%</td>
<td>1</td>
<td>5.5%</td>
<td>1</td>
<td>5.5%</td>
</tr>
<tr>
<td>Bottle guard</td>
<td>1</td>
<td>5.5%</td>
<td>1</td>
<td>5.5%</td>
<td>1</td>
<td>5.5%</td>
</tr>
<tr>
<td>egg</td>
<td>2</td>
<td>5.5%</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>11%</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>100%</td>
<td>18</td>
<td>100%</td>
<td>18</td>
<td>100%</td>
</tr>
</tbody>
</table>
Observation:

Among 40 cases, 18 came under group 1(<4mm), the shape of the Neikkuri in one minute, 16.5% of cases had coin shape, 5.5% of cases had circular, 38.5% of cases had vacuolated sieve, 5.5% of cases had kidney shape, 5.5% had leaf, 5.5% had bottle guard, 11% of cases had pearl shape and 11% of cases had egg shape.

In three minutes, 27.5% of cases had coin shape, 45.5% of cases had vacuolated sieve, 5.5% had leaf, 5.5% had bottle guard and 11% of cases had pearl shape.

In seven minutes, 22% of cases had coin shape, 11% of cases had circular, 33% of cases had vacuolated sieve, 5.5% had kidney, 5.5% had bottle guard, 11% had egg, 5.5% had leaf and 5.5% of cases had pearl shape.

Inference:

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
GROUP 2

(Renal calculi size 4-6mm)

<table>
<thead>
<tr>
<th>NEIKKURI SHAPE</th>
<th>1 MIN</th>
<th>3 MIN</th>
<th>7 MIN</th>
<th>1 MIN</th>
<th>3 MIN</th>
<th>7 MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
<td>PERCENT</td>
</tr>
<tr>
<td>coin</td>
<td>8</td>
<td>36%</td>
<td>6</td>
<td>27%</td>
<td>4</td>
<td>18%</td>
</tr>
<tr>
<td>Vacuolated sieve</td>
<td>11</td>
<td>45.5%</td>
<td>12</td>
<td>54%</td>
<td>14</td>
<td>63%</td>
</tr>
<tr>
<td>pearl</td>
<td>1</td>
<td>4.5%</td>
<td>1</td>
<td>4.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>circular</td>
<td>1</td>
<td>4.5%</td>
<td>2</td>
<td>5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>kidney</td>
<td>1</td>
<td>4.5%</td>
<td>1</td>
<td>4.5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>100%</td>
<td>22</td>
<td>100%</td>
<td>22</td>
<td>100%</td>
</tr>
</tbody>
</table>
**Observation:**

Among 40 cases, 22 came under group 2 (4-6mm), the shape of the Neikkuri in one minute, 36% of cases had coin shape, 4.5% of cases had circular, 45.5% of cases had vacuolated sieve, 4.5% of cases had kidney shape, and 4.5% of cases had pearl shape.

In three minutes, 27% of cases had coin shape, 5% of cases had circular, 54% of cases had vacuolated sieve, 4.5% of cases had kidney shape, and 4.5% of cases had pearl shape.

In seven minutes 18% of cases had coin shape, 5% of cases had circular, 63% of cases had vacuolated sieve, and 5% of cases had kidney shape.

**Inference:**

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
<table>
<thead>
<tr>
<th>NEIJKURI SHAPE</th>
<th>1 MIN</th>
<th></th>
<th>3 MIN</th>
<th></th>
<th>7 MIN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
<td>PERCENT</td>
</tr>
<tr>
<td>coin</td>
<td>3</td>
<td>13.5%</td>
<td>7</td>
<td>31.5%</td>
<td>5</td>
<td>40.5%</td>
</tr>
<tr>
<td>Vacuolated sieve</td>
<td>14</td>
<td>63%</td>
<td>11</td>
<td>45.5%</td>
<td>10</td>
<td>45%</td>
</tr>
<tr>
<td>pearl</td>
<td>1</td>
<td>4.5%</td>
<td>1</td>
<td>4.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>circular</td>
<td>2</td>
<td>5%</td>
<td>2</td>
<td>5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>kidney</td>
<td>2</td>
<td>5%</td>
<td>1</td>
<td>4.5%</td>
<td>1</td>
<td>4.5%</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>100%</td>
<td>22</td>
<td>100%</td>
<td>22</td>
<td>100%</td>
</tr>
</tbody>
</table>
Observation:

Among 40 cases, 22 came under group 2 (4-6mm), the shape of the Neikkuri in one minute, 13.5% of cases had coin shape, 5% of cases had circular, 63% of cases had vacuolated sieve, 5% of cases had kidney shape, and 4.5% of cases had pearl shape.

In three minutes, 31.5% of cases had coin shape, 5% of cases had circular, 45.5% of cases had vacuolated sieve, 4.5% of cases had kidney shape, and 4.5% of cases had pearl shape.

In seven minutes 40.5% of cases had coin shape, 5% of cases had circular, 45% of cases had vacuolated sieve, and 4.5% of cases had kidney shape.

Inference:

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
### GROUP 2(4-6MM- DAY 3)

<table>
<thead>
<tr>
<th>NEIKKURI SHAPE</th>
<th>1 MIN</th>
<th>3 MIN</th>
<th>7 MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
</tr>
<tr>
<td>coin</td>
<td>4</td>
<td>18%</td>
<td>5</td>
</tr>
<tr>
<td>Vacuolated sieve</td>
<td>14</td>
<td>63%</td>
<td>13</td>
</tr>
<tr>
<td>pearl</td>
<td>2</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>circular</td>
<td>0</td>
<td>0%</td>
<td>2</td>
</tr>
<tr>
<td>kidney</td>
<td>2</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>100%</td>
<td>22</td>
</tr>
</tbody>
</table>

![Graph showing the distribution of shapes over time](chart.png)
**Observation:**

Among 40 cases, 22 came under group 2 (4-6mm), the shape of the Neikkuri in one minute, 18% of cases had coin shape, 63% of cases had vacuolated sieve, 5% of cases had kidney shape, and 5% of cases had pearl shape.

In three minutes, 22.5% of cases had coin shape, 5% of cases had circular, 58.5% of cases had vacuolated sieve, 4.5% of cases had kidney shape, and 4.5% of cases had pearl shape.

In seven minutes, 31.5% of cases had coin shape, 54% of cases had vacuolated sieve, 5% of cases had kidney shape, and 4.5% of cases had pearl shape.

**Inference:**

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
GROUP 1
(Renal calculi size <4mm)

<table>
<thead>
<tr>
<th>NEIKKURI SHAPE</th>
<th>1 MIN</th>
<th>3 MIN</th>
<th>7 MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
</tr>
<tr>
<td>coin</td>
<td>8</td>
<td>44%</td>
<td>7</td>
</tr>
<tr>
<td>Vacuolated sieve</td>
<td>5</td>
<td>27.5%</td>
<td>6</td>
</tr>
<tr>
<td>pearl</td>
<td>0</td>
<td>0%</td>
<td>2</td>
</tr>
<tr>
<td>circular</td>
<td>2</td>
<td>11%</td>
<td>2</td>
</tr>
<tr>
<td>kidney</td>
<td>1</td>
<td>5.5%</td>
<td>0</td>
</tr>
<tr>
<td>leaf</td>
<td>1</td>
<td>5.5%</td>
<td>1</td>
</tr>
<tr>
<td>Bottle guard</td>
<td>1</td>
<td>5.5%</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>100%</td>
<td>18</td>
</tr>
</tbody>
</table>
Observation:

Among 40 cases, 18 came under group 1(≤4mm), the shape of the Neikkuri in one minute, 44% of cases had coin shape, 11% of cases had circular, 27.5% of cases had vacuolated sieve, 5.5% of cases had kidney shape, 5.5% had leaf and 5.5% had bottle guard.

In three minutes, 38.5% of cases had coin shape, 33% of cases had vacuolated sieve, 5.5% had leaf, 11% had circular and 11% of cases had pearl shape.

In seven minutes, 55% of cases had coin shape, 5.5% of cases had circular, 22% of cases had vacuolated sieve, 5.5% had bottle guard, 5% had egg, 5.5% had leaf and 5.5% of cases had pearl shape.

Inference:

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
GROUP 2
(RENAL CALCULI SIZE 4-6MM)

<table>
<thead>
<tr>
<th>NEIKKURI SHAPE</th>
<th>1 MIN</th>
<th>3 MIN</th>
<th>7 MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>PERCENT</td>
<td>NO</td>
</tr>
<tr>
<td>coin</td>
<td>12</td>
<td>54%</td>
<td>4</td>
</tr>
<tr>
<td>Vacuolated sieve</td>
<td>8</td>
<td>36%</td>
<td>13</td>
</tr>
<tr>
<td>pearl</td>
<td>1</td>
<td>4.5%</td>
<td>0</td>
</tr>
<tr>
<td>circular</td>
<td>0</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>kidney</td>
<td>1</td>
<td>4.5%</td>
<td>1</td>
</tr>
<tr>
<td>egg</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>100%</td>
<td>22</td>
</tr>
</tbody>
</table>
**Observation:**

Among 40 cases, 22 came under group 2(4-6mm), the shape of the Neikkuri in one minute, 54% of cases had coin shape, 9% of cases had circular, 36% of cases had vacuolated sieve, 4.5% of cases had kidney and 4.5 had pearl.

In three minutes, 18% of cases had coin shape, 58.5% of cases had vacuolated sieve, 4.5% had kidney and 4.5% had circular.

In seven minutes, 49.5% of cases had coin shape, 5% of cases had circular, 22.5% of cases had vacuolated sieve, 4.5% had bottle guard, 4.5% had egg, 4.5% had kidney and 9% of cases had pearl shape.

**Inference:**

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
VACUOLATION:

Day 1:

<table>
<thead>
<tr>
<th>Neikkuri</th>
<th>1min</th>
<th>3min</th>
<th>7min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Percent</td>
<td>No</td>
</tr>
<tr>
<td>Non Vacuolated</td>
<td>5</td>
<td>12.5%</td>
<td>6</td>
</tr>
<tr>
<td>vacuolated</td>
<td>35</td>
<td>87.5%</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
<td>40</td>
</tr>
</tbody>
</table>

Observation:

Among 40 cases, the neikkuri observed in one minute, 12.5% had non vacuolated and 87.5% had vacuolated. In three minutes, 15% had non vacuolated and 85% had vacuolated. In seven minutes, 27.5% had non vacuolated and 72.5% had vacuolated.

Inference:

In most of the cases, the Neikkuri observed in one minute, three minutes and seven minutes were of vacuolated sieves.
**Day 2:**

<table>
<thead>
<tr>
<th>Neikkuri</th>
<th>1min</th>
<th></th>
<th>3min</th>
<th></th>
<th>7min</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Percent</td>
<td>No</td>
<td>Percent</td>
<td>No</td>
<td>Percent</td>
</tr>
<tr>
<td>Non Vacuolated</td>
<td>4</td>
<td>10%</td>
<td>11</td>
<td>27.5%</td>
<td>18</td>
<td>45%</td>
</tr>
<tr>
<td>vacuolated</td>
<td>36</td>
<td>90%</td>
<td>29</td>
<td>72.5%</td>
<td>22</td>
<td>55%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Observation:**

Among 40 cases, the neikkuri observed in one minute, 10% had non vacuolated and 90% had vacuolated.

In three minutes, 27.5% had non vacuolated and 72.5% had vacuolated.

In seven minutes, 45% had non vacuolated and 55% had vacuolated.

**Inference:**

In most of the cases, the Neikkuri observed in one minute, three minutes and seven minutes were of vacuolated sieves.
Day 3:

<table>
<thead>
<tr>
<th>Neikkuri</th>
<th>1min</th>
<th>3min</th>
<th>7min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Percent</td>
<td>No</td>
</tr>
<tr>
<td>Non Vacuolated</td>
<td>5</td>
<td>12.5%</td>
<td>15</td>
</tr>
<tr>
<td>vacuolated</td>
<td>35</td>
<td>87.5%</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
<td>40</td>
</tr>
</tbody>
</table>

Observation:

Among 40 cases, the neikkuri observed in one minute, 12.5% had non vacuolated and 87.5 % had vacuolated.

In three minutes, 37.5% had non vacuolated and 62.5 % had vacuolated.

In seven minutes, 50% had non vacuolated and 50 % had vacuolated.

Inference:

In most of the cases, the Neikkuri observed in one minute, three minutes and seven minutes were of vacuolated sieves.
SPREADING NATURE:

<table>
<thead>
<tr>
<th>Spreading nature</th>
<th>No of samples</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slow spreading</td>
<td>24</td>
<td>20%</td>
</tr>
<tr>
<td>Fast spreading</td>
<td>96</td>
<td>80%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>120</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Among 120 samples of 40 cases, the nature of spreading were slow in 20% and fast in 80%.
1. OPD NO: C85056/CHANDRA

DAY 1: 1min
Shape: Coin

DAY 2: 1 minute
Shape: Pearl

DAY 1: 3 minutes
Shape: Kidney

DAY 2: 3 minutes
Shape: Coin

DAY 1: 7 minutes
Shape: Leaf

DAY 2: 7 minutes
Shape: Coin
2. OPD NO: D1938/DESINGH

DAY 3 : 1 minutes
Shape: coin

DAY 3: 3 minutes
Shape: coin

DAY 3: 7 minutes
Shape: coin

DAY 1: 1 minutes
Shape: Coin

DAY 1: 3 minutes
Shape: Coin

DAY 1: 7 minutes
Shape: Coin
3. OPD NO: 4998/GOPALSAMY

**DAY 1:** 1 minute
Shape: pearl

**DAY 2:** 1 minute
Shape: pearl

**DAY 1:** 3 minutes
Shape: Coin

**DAY 2:** 3 minutes
Shape: pearl

**DAY 1:** 7 minutes
Shape: Coin

**DAY 2:** 7 minutes
Shape: pearl
DAY 3 : 1 minutes  
Shape : vacuolated

DAY 3 : 3 minutes  
Shape : vacuolated

DAY 3 : 7 minutes  
Shape : vacuolated

DAY 1 : 1 minutes  
Shape : kidney

DAY 1 : 3 minutes  
Shape : vacuolated

DAY 1 : 7 minutes  
Shape : Coin

4.OPD NO : C72943/MARY
DAY 2 : 1 minutes
Shape : Coin

DAY 3 : 1 minutes
Shape : pearl

DAY 2 : 3 minutes
Shape : kidney

DAY 3 : 3 minutes
Shape : pearl

DAY 2 : 7 minutes
Shape : kidney

DAY 3 : 7 minutes
Shape : pearl
5. OPD NO: D2775/THIYAGARAJAN

Day 1: 1 minute
Shape: Coin

Day 2: 1 minute
Shape: Coin

Day 1: 3 minutes
Shape: Circular

Day 2: 3 minutes
Shape: Coin

Day 1: 7 minutes
Shape: Circular

Day 2: 7 minutes
Shape: Coin
DAY 2 : 1 minutes
Shape : Coin

DAY 3 : 1 minutes
Shape : Coin

DAY 2 : 3 minutes
Shape : Coin

DAY 3 : 3 minutes
Shape : Coin

DAY 2 : 7 minutes
Shape : coin

DAY 3 : 7 minutes
Shape : Coin
7. OPD NO: D1932/VIJAYARANGAN

DAY 1: 1 minute
Shape: Circular

DAY 2: 1 minute
Shape: vacuolated

DAY 1: 3 minutes
Shape: Circular

DAY 2: 3 minutes
Shape: vacuolated

DAY 1: 7 minutes
Shape: Circular

DAY 2: 7 minutes
Shape: vacuolated
DAY 3 : 1 minutes
Shape : circular

DAY 3 : 3 minutes
Shape : vacuolated

DAY 3 : 7 minutes
Shape : vacuolated

8.OPD NO: D11044/SHANKAR
DAY 1 : 1 minutes
Shape : circular

DAY 1 : 3 minutes
Shape : oval

DAY 1 : 7 minutes
Shape : circular
DAY 2 : 1 minutes
Shape : Circular

DAY 3 : 1 minutes
Shape : Coin

DAY 2 : 3 minutes
Shape : vacuolated

DAY 3 : 3 minutes
Shape: Coin

DAY 2 : 7 minutes
Shape : vacuolated

DAY 3 : 7 minutes
Shape : Coin
9. OPD NO: D9342/SANTHOSH

DAY 1: 1 min
Shape: vacuolated

DAY 1: 3 minutes
Shape: vacuolated

DAY 1: 7 minutes
Shape: vacuolated

DAY 2: 1 minutes
Shape: Coin

DAY 2: 3 minutes
Shape: oval

DAY 2: 7 minutes
Shape: vacuolated
DAY 3 : 1 minutes
Shape : egg

DAY 1 : 1 minutes
Shape : Coin

DAY 3 : 3 minutes
Shape : Egg

DAY 1 : 3 minutes
Shape : Coin

DAY 3 : 7 minutes
Shape : vacuolated

DAY 1 : 7 minutes
Shape : Coin
DAY 2 : 1min
Shape : pearl

DAY 3 : 1minutes
Shape : leaf

DAY 2 : 3 minutes
Shape : Coin

DAY 3 : 3minutes
Shape : leaf

DAY 2 : 7minutes
Shape : Coin

DAY 3 : 7minutes
Shape : leaf
11. OPD NO: D220 46/F

DAY 1: 1 min
Shape: Coin

DAY 2: 1 minute
Shape: coin

DAY 1: 3 minutes
Shape: seed

DAY 2: 3 minutes
Shape: vacuolated

DAY 1: 7 minutes
Shape: vacuolated

DAY 2: 7 minutes
Shape: vacuolated
12. OPD NO: 4208 MOIDHEN

DAY 3: 1 minutes
Shape: egg

DAY 1: 1 minutes
Shape: Coin

DAY 3: 3 minutes
Shape: vacuolated

DAY 1: 3 minutes
Shape: Coin

DAY 3: 7 minutes
Shape: vacuolated

DAY 1: 7 minutes
Shape: Coin
DAY 2 : 1 minutes
Shape : Coin

DAY 3 : 1 minutes
Shape : Coin

DAY 2 : 3 minutes
Shape : Coin

DAY 3 : 3 minutes
Shape : Coin

DAY 2 : 7 minutes
Shape : coin

DAY 3 : 7 minutes
Shape : Coin
13. OPD NO: D 8209 43/F

DAY 1: 1 minutes
Shape: coin

DAY 2: 1 minutes
Shape: coin

DAY 1: 3 minutes
Shape: Coin

DAY 2: 3 minutes
Shape: coin

DAY 1: 7 minutes
Shape: Coin

DAY 2: 7 minutes
Shape: coin
14. OPD NO: NARENDRAN

DAY 1: 1 minute
Shape: coin

DAY 3: 1 minute
Shape: vacuolated

DAY 1: 3 minutes
Shape: coin

DAY 3: 3 minutes
Shape: vacuolated

DAY 1: 7 minutes
Shape: vacuolated

DAY 3: 7 minutes
Shape: vacuolated
DAY 2: 1 minutes
Shape: Bottleguard

DAY 3: 1 minutes
Shape: coin

DAY 2: 3 minutes
Shape: Bottleguard

DAY 3: 3 minutes
Shape: kidney

DAY 2: 7 minutes
Shape: Bottleguard

DAY 3: 7 minutes
Shape: kidney
15. OPD NO: D2811 30/m

DAY 1: 1 minute
Shape: Coin

DAY 2: 1 minute
Shape: Coin

DAY 1: 3 minutes
Shape: Coin

DAY 2: 3 minutes
Shape: Vacuolated

DAY 1: 7 minutes
Shape: Coin

DAY 2: 7 minutes
Shape: Vacuolated
Day 3: 1 minute
Shape: Coin

Day 1: 1 minute
Shape: Coin

Day 3: 3 minutes
Shape: Coin

Day 1: 3 minutes
Shape: Coin

Day 3: 7 minutes
Shape: Egg

Day 1: 7 minutes
Shape: Coin
DAY 2 : 1 minutes  
Shape : Coin

DAY 3 : 1 minutes  
Shape : acuolated

DAY 2 : 3 minutes  
Shape : Coin

DAY 3 : 3 minutes  
Shape : vacuolated

DAY 2 : 7 minutes  
Shape : coin

DAY 3 : 7 minutes  
Shape : vacuolated
17. OPD NO: b 1742 48/f

DAY 1: 1 minutes
Shape: vacuolated

DAY 2: 1 minutes
Shape: vacuolated

DAY 1: 3 minutes
Shape: vacuolated

DAY 2: 3 minutes
Shape: vacuolated

DAY 1: 7 minutes
Shape: vacuolated

DAY 2: 7 minutes
Shape: vacuolated
18. OPD NO: C93582 33/F

DAY 3 : 1 minutes
Shape : vacuolated

DAY 1 : 1 minutes
Shape : coin

DAY 3 : 3 minutes
Shape : vacuolated

DAY 1 : 3 minutes
Shape : coin

DAY 3 : 7 minutes
Shape : vacuolated

DAY 1 : 7 minutes
Shape : coin
<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 2</td>
<td>1 min</td>
<td>coin</td>
</tr>
<tr>
<td>Day 3</td>
<td>1 min</td>
<td>pearl</td>
</tr>
<tr>
<td>Day 2</td>
<td>3 min</td>
<td>coin</td>
</tr>
<tr>
<td>Day 3</td>
<td>3 min</td>
<td>pearl</td>
</tr>
<tr>
<td>Day 2</td>
<td>7 min</td>
<td>circle</td>
</tr>
<tr>
<td>Day 3</td>
<td>7 min</td>
<td>pearl</td>
</tr>
</tbody>
</table>
19. OPD NO: C97902 36/m

**Day 1:** 1 minute
Shape: coin

**Day 2:** 1 minute
Shape: vacuolated

**Day 1:** 3 minutes
Shape: coin

**Day 2:** 3 minutes
Shape: vacuolated

**Day 1:** 7 minutes
Shape: coin

**Day 2:** 7 minutes
Shape: vacuolated
20. IPD NO: 5019 45/M

DAY 3: 1 minute
Shape: coin

DAY 1: 1 minute
Shape: Coin

DAY 3: 3 minutes
Shape: coin

DAY 1: 3 minutes
Shape: Coin

DAY 3: 7 minutes
Shape: coin

DAY 1: 7 minutes
Shape: circle
DAY 2 : 1min
Shape : coin

DAY 3 : 1minutes
Shape : coin

DAY 2 : 3 minutes
Shape : Coin

DAY 3 : 3minutes
Shape : oval

DAY 2 : 7minutes
Shape : Coin

DAY 3 : 7minutes
Shape : vacuolated
21. OPD NO: D 1964 33/F

DAY 1: 1min
Shape: Coin

DAY 2: 1 minute
Shape: coin

DAY 1: 3 minutes
Shape: coin

DAY 2: 3 minutes
Shape: Coin

DAY 1: 7 minutes
Shape: coin

DAY 2: 7 minutes
Shape: Coin
2. OPD NO: C 2130 45/M

DAY 3: 1 minutes
Shape: coin

DAY 1: 1 minutes
Shape: Coin

DAY 3: 3 minutes
Shape: vacuolated

DAY 1: 3 minutes
Shape: Coin

DAY 3: 7 minutes
Shape: vacuolated

DAY 1: 7 minutes
Shape: Coin
DAY 2 : 1 minutes
Shape : Coin

DAY 3 : 1 minutes
Shape : pearl

DAY 2 : 3 minutes
Shape : Coin

DAY 3 : 3 minutes
Shape : Coin

DAY 2 : 7 minutes
Shape : coin

DAY 3 : 7 minutes
Shape : Coin
23. OPD NO: A 89506 54/M

**DAY 1**: 1 minutes
Shape: coin

**DAY 2**: 1 minutes
Shape: coin

**DAY 1**: 3 minutes
Shape: Coin

**DAY 2**: 3 minutes
Shape: coin

**DAY 1**: 7 minutes
Shape: Coin

**DAY 2**: 7 minutes
Shape: coin
24.OPD NO : 5123 56/M

DAY 1 : 1 minutes
Shape : pearl

DAY 3 : 1 minutes
Shape : vacuolated

DAY 1 : 3 minutes
Shape : coin

DAY 3 : 3 minutes
Shape : vacuolated

DAY 1 : 7 minutes
Shape : Coin

DAY 3 : 7 minutes
Shape : vacuolated
25. OPD NO: D 6074

**DAY 1:** 1 minute
Shape: Coin

**DAY 1:** 3 minutes
Shape: Coin

**DAY 1:** 7 minutes
Shape: Vacuolated

**DAY 2:** 1 minute
Shape: Coin

**DAY 2:** 3 minutes
Shape: Coin

**DAY 2:** 7 minutes
Shape: Coin
DAY 3 : 1 minutes
Shape : Coin

DAY 3 : 3 minutes
Shape : Coin

DAY 3 : 7 minutes
Shape : egg

DAY 1 : 1 minute
Shape : coin

DAY 1 : 3 minutes
Shape : coin

DAY 1 : 7 minutes
Shape : vacuolated
DAY 2: 1 minute
Shape: lotus leaf

DAY 3: 1 minute
Shape: Coin

DAY 2: 3 minutes
Shape: vacuolated

DAY 3: 3 minutes
Shape: Coin

DAY 2: 7 minutes
Shape: vacuolated

DAY 3: 7 minutes
Shape: Coin
27. OPD NO : 4030 51/F
DAY 1 : 1 minutes
Shape : coin
DAY 2 : 1 minutes
Shape : coin

DAY 1 : 3 minutes
Shape : Circle
DAY 2 : 3 minutes
Shape : coin

DAY 1 : 7 minutes
Shape : egg
DAY 2 : 7 minutes
Shape : coin
2 8. OPD NO: C 92688 32/M

DAY 3 : 1 minutes
Shape : coin

DAY 1 : 1 minutes
Shape : vacuolated

DAY 3 : 3 minutes
Shape : coin

DAY 1 : 3 minutes
Shape : vacuolated

DAY 3 : 7 minutes
Shape : coin

DAY 1 : 7 minutes
Shape : vacuolated
DAY 2 : 1 minutes  
Shape : coin

DAY 3 : 1 minutes  
Shape : Coin

DAY 2 : 3 minutes  
Shape : coin

DAY 3 : 3 minutes  
Shape: vacuolated

DAY 2 : 7 minutes  
Shape : oval

DAY 3 : 7 minutes  
Shape : vacuolated
29. OPD NO: D60031 52/M

Day 1: 1 minute
Shape: mountain

Day 2: 1 minute
Shape: Coin

Day 1: 3 minutes
Shape: kidney

Day 2: 3 minutes
Shape: Coin

Day 1: 7 minutes
Shape: vacuolated

Day 2: 7 minutes
Shape: Coin
DAY 3 : 1 minutes  
Shape : coin

DAY 1 : 1 minutes  
Shape : Coin

DAY 3 : 3 minutes  
Shape : coin

DAY 1 : 3 minutes  
Shape : Coin

DAY 3 : 7 minutes  
Shape : coin

DAY 1 : 7 minutes  
Shape : Coin
DAY 2 : 1min
Shape : kidney

DAY 3 : 1minutes
Shape : coin

DAY 2 : 3 minutes
Shape : vacuolated

DAY 3 : 3minutes
Shape : coin

DAY 2 : 7minutes
Shape : vacuolated

DAY 3 : 7minutes
Shape : oval
31. OPD NO: D 99670

**DAY 1:**
- 1 minute
  - Shape: pearl

**DAY 2:**
- 1 minute
  - Shape: coin

**DAY 1:**
- 3 minutes
  - Shape: pearl

**DAY 2:**
- 3 minutes
  - Shape: coin

**DAY 1:**
- 7 minutes
  - Shape: pearl

**DAY 2:**
- 7 minutes
  - Shape: coin
32. OPD NO: D 3283

**DAY 3:** 1 minutes
Shape: leaf

**DAY 1:** 1 minutes
Shape: Coin

**DAY 3:** 3 minutes
Shape: leaf

**DAY 1:** 3 minutes
Shape: Coin

**DAY 3:** 7 minutes
Shape: vacuolated

**DAY 1:** 7 minutes
Shape: Coin
DAY 2 : 1 minutes
Shape : pearl

DAY 3 : 1 minutes
Shape : leaf

DAY 2 : 3 minutes
Shape : pearl

DAY 3 : 3 minutes
Shape : vacuolated

DAY 2 : 7 minutes
Shape : coin

DAY 3 : 7 minutes
Shape : vacuolated
33. OPD NO: D 6243 27/M

DAY 1: 1 minutes
Shape: pearl

DAY 2: 1 minutes
Shape: coin

DAY 1: 3 minutes
Shape: Coin

DAY 2: 3 minutes
Shape: coin

DAY 1: 7 minutes
Shape: Coin

DAY 2: 7 minutes
Shape: oval
34. OPD NO: C 37962

DAY 3: 1 minute
Shape: coin

DAY 1: 1 minute
Shape: coin

DAY 3: 3 minutes
Shape: coin

DAY 1: 3 minutes
Shape: vacuolated

DAY 3: 7 minutes
Shape: coin

DAY 1: 7 minutes
Shape: vacuolated
DAY 2 : 1 minutes
Shape : pearl

DAY 3 : 1 minutes
Shape : worm

DAY 2 : 3 minutes
Shape : coin

DAY 3 : 3 minutes
Shape : leaf

DAY 2 : 7 minutes
Shape : coin

DAY 3 : 7 minutes
Shape : vacuolated
35. OPD NO: 4061 30/F

DAY 1: 1 minute
Shape: Coin

DAY 2: 1 minute
Shape: Coin

DAY 1: 3 minutes
Shape: Coin

DAY 2: 3 minutes
Shape: Coin

DAY 1: 7 minutes
Shape: Coin

DAY 2: 7 minutes
Shape: Coin
DAY 3: 1 minutes
Shape: Coin

DAY 3: 3 minutes
Shape: Coin

DAY 3: 7 minutes
Shape: Coin

3 6. OPD NO: C 67411 58/F

DAY 1: 1 minute
Shape: Coin

DAY 1: 3 minutes
Shape: Coin

DAY 1: 7 minutes
Shape: Coin
DAY 2: 1 minute
Shape: oval

DAY 3: 1 minute
Shape: Coin

DAY 2: 3 minutes
Shape: vacuolated

DAY 3: 3 minutes
Shape: leaf

DAY 2: 7 minutes
Shape: vacuolated

DAY 3: 7 minutes
Shape: leaf
37. OPD NO: D 5398 40/M

DAY 1: 1 minutes
Shape: coin

DAY 2: 1 minutes
Shape: vacuolated

DAY 1: 3 minutes
Shape: coin

DAY 2: 3 minutes
Shape: vacuolated

DAY 1: 7 minutes
Shape: egg

DAY 2: 7 minutes
Shape: vacuolated
38. OPD NO: 4087 42/F

DAY 1: 1 minute
Shape: pearl

DAY 3: 1 minute
Shape: coin

DAY 1: 3 minutes
Shape: pearl

DAY 3: 3 minutes
Shape: vacuolated

DAY 1: 7 minutes
Shape: coin

DAY 3: 7 minutes
Shape: vacuolated
DAY 2 : 1 minutes
Shape : coin

DAY 3 : 1 minutes
Shape : Coin

DAY 2 : 3 minutes
Shape : coin

DAY 3 : 3 minutes
Shape: vacuolated

DAY 2 : 7 minutes
Shape : coin

DAY 3 : 7 minutes
Shape : vacuolated
39. OPD NO: C 1278 30/F

DAY 1: 1 minute
Shape: vacuolated

DAY 2: 1 minute
Shape: pearl

DAY 1: 3 minutes
Shape: vacuolated

DAY 2: 3 minutes
Shape: pearl

DAY 1: 7 minutes
Shape: vacuolated

DAY 2: 7 minutes
Shape: pearl
40. IPD NO: D 5983

DAY 3: 1 minutes
Shape: coin

DAY 1: 1 minute
Shape: Coin

DAY 3: 3 minutes
Shape: coin

DAY 1: 3 minutes
Shape: Coin

DAY 3: 7 minutes
Shape: coin

DAY 1: 7 minutes
Shape: Coin
DAY 2: 1min
Shape: circle

DAY 3: 1minutes
Shape: vacuolated

DAY 2: 3 minutes
Shape: vacuolated

DAY 3: 3minutes
Shape: vacuolated

DAY 2: 7 minutes
Shape: vacuolated

DAY 3: 7 minutes
Shape: vacuolated
DIFFERENT COLOUR OF THE URINE

COLOUR LESS URINE

STRAW COLOURED URINE

STRAW YELLOW COLOUR URINE

DARK YELLOW COLOUR URINE
HEALTHY VOLUNTEERS

COLOUR OF URINE:

<table>
<thead>
<tr>
<th>COLOUR</th>
<th>DAY 1</th>
<th></th>
<th>DAY 2</th>
<th></th>
<th>DAY 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>PALE YELLOW</td>
<td>9</td>
<td>90%</td>
<td>10</td>
<td>100%</td>
<td>9</td>
<td>90%</td>
</tr>
<tr>
<td>DARK YELLOW</td>
<td>1</td>
<td>10%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Observation:**

Among 10 cases, the colour of the urine had 90% pale yellow colour, 10% of cases had dark yellow colour in first day and third day. 100% of cases had pale yellow colour.

**Inference:**

In most of the cases, the colour of the urine observed were pale yellow colour.
**ODOUR OF URINE:**

<table>
<thead>
<tr>
<th>ODOUR</th>
<th>DAY 1</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
<th>DAY 2</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
<th>DAY 3</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aromatic</td>
<td></td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>10</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Ammonical</td>
<td></td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>10</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

**Observation:**

Among 10 cases, the odour of the urine 100% had aromatic odour in three days.

**Inference:**

In all of the cases, the odour of the urine observed were of aromatic odour.

The odour obtained were normal.
SPECIFIC GRAVITY:

<table>
<thead>
<tr>
<th>SPECIFIC GRAVITY</th>
<th>DAY 1</th>
<th></th>
<th>DAY 2</th>
<th></th>
<th>DAY 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>1.003-1.010</td>
<td>2</td>
<td>20%</td>
<td>1</td>
<td>10%</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>1.011-1.015</td>
<td>3</td>
<td>30%</td>
<td>4</td>
<td>40%</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>1.016-1.020</td>
<td>4</td>
<td>40%</td>
<td>4</td>
<td>40%</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>1.021-1.025</td>
<td>1</td>
<td>10%</td>
<td>1</td>
<td>10%</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

Observation:

Among 10 cases, the Specific gravity of the urine in the first day, 20% had Specific gravity between 1.003-1.010, 30% had Specific gravity between 1.011-1.015, 40% had Specific gravity between 1.015-1.020 and 10% had Specific gravity between 1.021-1.025.

Among 10 cases, the Specific gravity of the urine in the first day, 10% had Specific gravity between 1.003-1.010, 40% had Specific gravity between 1.011-1.015, 40% had Specific gravity between 1.015-1.020 and 10% had Specific gravity between 1.021-1.025.
Among 10 cases, the Specific gravity of the urine in the first day, 10% had Specific gravity between 1.003-1.010, 50% had Specific gravity between 1.011-1.015, 20% had Specific gravity between 1.015-1.020 and 20% had Specific gravity between 1.021-1.025.

**Inference:**

In most of the cases, the Specific gravity of the urine observed were of 1.010 – 1.020. The result obtained were normal.

**FROTH:**

<table>
<thead>
<tr>
<th>FROTH</th>
<th>DAY 1</th>
<th></th>
<th>DAY 2</th>
<th></th>
<th>DAY 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>ABSENT</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>PRESENT</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Observation:**

Among 10 cases the froth of the urine is absent in 100% in three days.

**Inference:**

In most of the cases, the froth is absent in the urine. The result which is Obtained were normal.
VOLUME OF URINE:

<table>
<thead>
<tr>
<th></th>
<th>DAY 1</th>
<th></th>
<th>DAY 2</th>
<th></th>
<th>DAY 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>500ml-1 lit</td>
<td>1</td>
<td>10%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>1.1-1.5lit</td>
<td>9</td>
<td>90%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>1.6-2lit</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

Observation:
Among 10 cases 90% of cases passed 1.1-1.5 lit per day, 10% of cases passed 500ml-1 lit in first day. 100% of cases passed 1.1-1.5 lit in the second and third day.

Inference:
In all of the cases, the volumes of the urine passed per day were 1.1-1.5 litres.
**PH VALUE:**

<table>
<thead>
<tr>
<th>PH</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELOW 6</td>
<td>9</td>
<td>90%</td>
</tr>
<tr>
<td>6.1-7</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Above 7</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Observation:**

Among 10 cases, 90% of cases had PH below 6, 10% of cases had pH between 6.1-7.

**Inference:**

In most of the cases, the PH of the urine observed were of below 6. The result which obtained were normal.
### DIFFERENT PATTERNS OBSERVED IN NEIKKURI: DAY 1

<table>
<thead>
<tr>
<th></th>
<th>1 MINUTE</th>
<th></th>
<th>3 MINUTE</th>
<th></th>
<th>7 MINUTE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF</td>
<td>PERCENTAGE</td>
<td>NO OF</td>
<td>PERCENTAGE</td>
<td>NO OF</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>CASES</td>
<td>CASES</td>
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**Observation:**

Among 10 cases, the shape of the Neikkuri in first minute, 100% of cases had coin shape. In three minutes, 90% of cases had coin shape, 10% of cases had egg shape. In seven minutes, 70% of cases had coin shape, 30% of cases had circular shape.

**Inference:**

In most of the cases, the shape of the Neikkuri observed in first minute, three minutes and seven minutes were of coin and circular shapes.
Observation:

Among 10 cases, the shape of the Neikkuri in first minute, 100% of cases had coin shape. In three minutes, 70% of cases had coin shape, 30% of cases had circular shape. In seven minutes, 40% of cases had coin shape, 60% of cases had circular shape.

Inference:

In most of the cases, the shape of the Neikkuri observed in first minute, three minutes and seven minutes were of coin and circular shapes.
### Observation:

Among 10 cases, the shape of the Neikkuri in first minute, 90% of cases had coin shape and 10% of cases had jasmine bud shape. In three minutes, 80% of cases had coin shape, 10% of cases had jasmine bud and egg shape. In seven minutes, 40% of cases had coin shape, 20% of cases had circular, ring shape, 10% of cases had jasmine bud, lute shape.

### Inference:

In most of the cases, the shape of the Neikkuri observed in first minute, three minutes and seven minutes were of coin and circular shapes.
HEALTHY VOLUNTEERS

1. OPD NO: D19928  25/M

DAY 1 : 1 MINUTES
SHAPE: COIN

DAY 2 : 1 MINUTES
SHAPE: COIN

DAY 1 : 3 MINUTES
SHAPE: COIN

DAY 2 : 3 MINUTES
SHAPE: COIN

DAY 1 : 7 MINUTES
SHAPE: COIN

DAY 2 : 7 MINUTES
SHAPE: CIRCULAR
OPD NO: D19929 60/M

DAY 3: 1 MINUTES
SHAPE: JASMINE BUD

DAY 1: 1 MINUTES
SHAPE: COIN

DAY 3: 3 MINUTES
SHAPE: JASMINE BUD

DAY 1: 3 MINUTES
SHAPE: COIN

DAY 3: 7 MINUTES
SHAPE: LUTE

DAY 1: 7 MINUTES
SHAPE: COIN
3. OPD NO: D30224 30/M

DAY 1: 1 MINUTES
SHAPE: COIN

DAY 2: 1 MINUTES
SHAPE: COIN

DAY 1: 3 MINUTES
SHAPE: COIN

DAY 2: 3 MINUTES
SHAPE: CIRCULAR

DAY 1: 7 MINUTES
SHAPE: COIN

DAY 2: 7 MINUTES
SHAPE: CIRCULAR
OPD NO : C 86813  27/M

DAY 3 : 1 MINUTE
SHAPE : COIN

DAY 3 : 3 MINUTES
SHAPE : COIN

DAY 3 : 7 MINUTES
SHAPE : COIN

DAY 1 : 1 MINUTES
SHAPE : COIN

DAY 1 : 3 MINUTES
SHAPE : COIN

DAY 1 : 7 MINUTES
SHAPE : COIN
5. OPD NO: C72223 37/M

**DAY 1: 1 MINUTES**
SHAPE: COIN  

**DAY 2: 1 MINUTES**
SHAPE: COIN

**DAY 1: 3 MINUTES**
SHAPE: COIN  

**DAY 2: 3 MINUTES**
SHAPE: COIN

**DAY 1: 7 MINUTES**
SHAPE: COIN  

**DAY 2: 7 MINUTES**
SHAPE: CIRCULAR
DAY 3 : 1 MINUTES
SHAPE : COIN

DAY 3 : 3 MINUTES
SHAPE : COIN

DAY 3 : 7 MINUTES
SHAPE : RING

DAY 1 : 1 MINUTES
SHAPE : COIN

DAY 1 : 3 MINUTES
SHAPE : COIN

DAY 1 : 7 MINUTES
SHAPE : COIN
DAY 2 : 1 MINUTES
SHAPE : COIN

DAY 3 : 1 MINUTES
SHAPE : COIN

DAY 2 : 3 MINUTES
SHAPE : COIN

DAY 3 : 3 MINUTES
SHAPE : COIN

DAY 2 : 7 MINUTES
SHAPE : COIN

DAY 3 : 7 MINUTES
SHAPE : COIN
7. O.P.NO: D15797 24/ F

DAY 1: 1 MINUTES
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DAY 2: 1 MINUTES
SHAPE: COIN

DAY 1: 3 MINUTES
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DAY 2: 3 MINUTES
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DAY 1: 7 MINUTES
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DAY 2: 7 MINUTES
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DAY 3 : 1 MINUTES
SHAPE : COIN

DAY 3 : 3 MINUTES
SHAPE : COIN

DAY 3 : 7 MINUTES
SHAPE : JASMINE BUD

DAY 1 : 1 MINUTES
SHAPE : COIN

DAY 1 : 3 MINUTES
SHAPE : COIN

DAY 1 : 7 MINUTES
SHAPE : CIRCULAR

8. O.P. NO: D13393 26/ F
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SHAPE: COIN

DAY 3: 1 MINUTES
SHAPE: COIN

DAY 2: 3 MINUTES
SHAPE: CIRCULAR

DAY 3: 3 MINUTES
SHAPE: COIN

DAY 2: 7 MINUTES
SHAPE: OVAL

DAY 3: 7 MINUTES
SHAPE: CIRCULAR
9. O.P. NO: C33345 38/M

DAY 1: 1
SHAPE: COIN

DAY 2: 1 MINUTES
SHAPE: COIN

DAY 1: 3 MINUTES
SHAPE: EGG

DAY 2: 3 MINUTES
SHAPE: COIN

DAY 1: 7 MINUTES
SHAPE: CIRCULAR

DAY 2: 7 MINUTES
SHAPE: CIRCULAR
DAY 2: 1 MINUTE
SHAPE: COIN

DAY 2: 3 MINUTES
SHAPE: CIRCULAR

DAY 2: 7 MINUTES
SHAPE: CIRCULAR

DAY 3: 1 MINUTES
SHAPE: COIN

DAY 3: 3 MINUTES
SHAPE: COIN

DAY 3: 7 MINUTES
SHAPE: CIRCULAR
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<th>ODOUR (MANAM)</th>
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TABLE SHOWS ANALYSIS OF NEERKKURI IN KALLADAIPPU PATIENT

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## TABLE SHOWS ANALYSIS OF NEERKKURI IN KALLADAIPPU PATIENTS

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## TABLE SHOWS ANALYSIS OF NEIKKURI IN KALLADAIPPU PATIENTS – DAY 2

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## Urine Analysis in Healthy Volunteers Patients

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DISCUSSION

Neerkkuri and Neikkuri are exclusively Siddha methods of diagnostic urine examination propounded by Theriyar. This is an efficient method in elucidating the prognosis of the given disease.

Out of the 80 cases screened, 40 diagnosed cases will be selected from the outpatient department and 20 normal subjects screened, 10 normal subjects will be selected from this study of Neerkkuri urine analysis and Neikkuri.

Among 40 cases, 15% of cases came under 51-60 yrs, 32.5% of cases came under 41-50 yrs and 52.5% of cases came under 20-40yrs.

Among 40 cases, 15% of cases were females, 25% of cases were males. Among 40 cases, 85% of cases came under Pitha kaalam ie., 34-66yrs, 15% of cases fall under Vatha kaalam 0-33yrs. Among 40 cases, 30% of cases had the naadinadai of Vatha pitham, 70% cases had Pitha vatham, 0% of cases had Kaba pitham. Among 40 cases, the colour of the urine were 2.5% colourless urine, 22.5% straw colour urine, 70% straw yellow colour urine and 5% dark yellow colour urine.

Among 40 cases, the odour of the urine 40% had aromatic odour, 55% ammonicalodour, and remaining 5% putrid odour.

Among 40 cases, the specific gravity of the urine 7.5% had specific gravity between 1.003-1.010, 30% had specific gravity between 1.011-1.015, 57.5% had specific gravity between 1.016-1.020 and 5% had specific gravity between 1.021-1.025.

Among 40 cases, the froth of the urine is absent in 87.50% and remaining 12.50% of urine had froth.

Among 40 cases 55% of cases passed 500ml -1 lit of urine per day, 37.5% of cases passed 1.1-1.5 lit per day and remaining 7.5% of cases passed 1.6-2lit per day.

Among 40 cases, 27.5% of cases had $p^H$ between 5.1-6, 37.5% of cases had $p^H$ between 6.1-7 and remaining 35% of cases had $p^H$ above 7.
**Day 1:**

Among 40 cases, the shape of the Neikkuri in one minute, 65% of cases had coin shape, 7.5% of cases had circular, 12.5% of cases had vacuolated sieve, 2.5% of cases had kidney shape and 10% of cases had pearl shape.

In three minutes, 57.5% of cases had coin shape, 7.5% of cases had pearl, 15% of cases had vacuolated sieve, 5% of cases had kidney shape and 2.5% of cases had pearl shape.

In seven minutes, 52.5% of cases had coin shape, 5% of cases had pearl, 27.5% of cases had vacuolated sieve, 2.5% had leaf, 5% of cases had egg and 2.5% of cases had circular.

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.

**Day 2:**

Among 40 cases, the shape of the Neikkuri in one minute, 57.5% of cases had coin shape, 5% of cases had circular, 10% of cases had vacuolated sieve, 2.5% had bottle guard, 2.5% had leaf, 2.5% had egg, 2.5% of cases had kidney shape and 17.5% of cases had pearl shape.

In three minutes, 42.5% of cases had coin shape, 7.5% of cases had pearl, 27.5% of cases had vacuolated sieve, 2.5% had bottle guard, 5% had leaf, 2.5% had egg, 2.5% of cases had kidney shape and 2.5% of cases had circular.

In seven minutes, 25% of cases had coin shape, 5% of cases had pearl, 45% of cases had vacuolated sieve, 2.5% had bottle guard, 5% of cases had egg, 5% had oval and 7.5% of cases had circular.

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
Day 3:

Among 40 cases, the shape of the Neikkuri in one minute, 50% of cases had coin shape, 2.5% of cases had circular, 12.5% of cases had vacuolated sieve, 2.5% had worm, and 17.5% of cases had pearl shape.

In three minutes, 30% of cases had coin shape, 5% of cases had pearl, 37.5% of cases had vacuolated sieve, 2.5% had worm, 5% had oval, 7.5% had leaf, 5% had egg, 2.5% of cases had kidney shape and 5% of cases had circular.

In seven minutes, 32.5% of cases had coin shape, 5% of cases had pearl, 50% of cases had vacuolated sieve, 2.5% of cases had egg, 5% had kidney and 2.5% of cases had circular.

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.

Among sample of 40 cases, 23 samples were of an $P^H$ value between 6 – 7. In this 23 cases Neikkuri patterns observed in one minute, 13% had coin, 17.5% had vacuolated sieve, 5% had pearl and 2.5% had circular shapes.

In three minutes, 42.5% had coin, 12.5% had vacuolated sieve, 2.5% had pearl.

In seven minutes, 27.5% had coin, 12.5% had vacuolated sieve, 7.5% had pearl, 2.5% had kidney and 7.5% had circular shapes.

In most of the cases, according to $P^H$ value between 6-7 the shape of the Neikkuri observed in one minute 32.5%, in three minute 42.5% and seven minutes 27.5% were of coin shapes.

Among sample of 40 cases, 7 samples were of an $P^H$ value above 7. In this 7 cases Neikkuri patterns observed in one minute, 12.5% had coin, 2.5% had vacuolated sieve, 2.5% had pearl.

In three minutes, 10% had coin, 5% had vacuolated sieve, 2.5% had kidney.

In seven minutes, 12.5% had coin, 2.5% had vacuolated sieve and 2.5% had circular shapes.
In most of the cases, according to pH value above 7 the shape of the Neikkuri observed in one minute 12.5%, in three minutes 10% and seven minutes 12.5% were of coin shapes.

Among sample of 40 cases, 10 samples were of an pH value between 5-6. In this 10 cases Neikkuri patterns observed in one minute, 15% had coin, 7.5% had vacuolated sieve, 2.5% had pearl.

In three minutes, 12.5% had coin, 5% had vacuolated sieve, 5% had pearl and 2.5% had circle.

In seven minutes, 12.5% had coin, 10% had vacuolated sieve and 2.5% had circular shapes.

In most of the cases, according to pH value between 5-6 the shape of the Neikkuri observed in one minute 15%, in three minutes 12.5% and seven minutes 12.5% were of coin shapes.

Among sample of 40 cases, 8 samples were of specific gravity value between 1.003-1.010. In this 8 cases Neikkuri patterns observed in one minute, 5% had coin, 5% had vacuolated sieve, 5% had pearl, 2.5% had circle and 2.5% had kidney.

In three minutes, 7.5% had coin, 10% had vacuolated sieve and 2.5% had kidney.

In seven minutes, 7.5% had coin, 10% had vacuolated sieve and 2.5% had pearl shapes.

In most of the cases, according to the shape of specific gravity value between 1.003-1.010 the Neikkuri observed in one minute 5%, in three minutes 10% and seven minutes 10% were of vacuolated sieve.

Among sample of 40 cases, 32 samples were of specific gravity value between 1.010-1.020. In this 32 cases Neikkuri patterns observed in one minute, 50% had coin, 15% had vacuolated sieve, 10% had pearl, 2.5% kidney and 2.5% had circular shapes.

In three minutes, 45% had coin, 17.5% had vacuolated sieve, 12.5% had pearl and 5% had kidney.
In seven minutes, 40% had coin, 18% had vacuolated sieve, 10% had pearl, 5% had kidney and 5% had circular shapes.

In most of the cases, according to specific gravity value between 1.010-1.020 the shape of the Neikkuri observed in one minute 50%, in three minutes 45% and seven minutes 40% were of coin shapes.

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves in both group 1 and 2.

In most of the cases, the Neikkuri observed in one minute, three minutes and seven minutes were of vacuolated sieves in day 1, day 2 and day 3.

Among 120 samples of 40 cases, the nature of spreading were slow in 20% and fast in 80%.

When more solutes are mixed in the urine, the specific gravity tends to increase and the surface tension is likely to decrease. When the urine becomes more diluted, the specific gravity decreases and the surface tension tends to increase. Therefore the oil drop is more likely to spread fast.

The reason for the difference in the neikkuri patterns of a given patient on three consecutive days could be dietary variations. Theran mentioned about various patterns of neikkuri formation in his treatise. In that ring shaped patterns are said to be associated with the Pitha humour in the urine. For a neikkuri shape to take a ring pattern there needs to be a large vacuole fill in the spreaded expanse of the instilled oil drop. So vacuole of a larger form is predominantly presumed to be because of Pitham in the urine.

**Healthy volunteers:**

In all of the cases, the colour of the urine observed were straw colour. In all of the cases, the odour of the urine observed were aromatic odour. The odour obtained were normal. In all of the cases, the volume of the urine passed per day were 1.1-1.5 litres. In most of the cases, the pH of the urine observed were between 5.1 – 6. The result which obtained were normal. In most of the cases, the Specific gravity of the urine observed were of 1.010 – 1.020. The result obtained were normal.
Day 1 - In most of the cases, the shape of the Neikkuri observed in one minute, three minutes, seven minutes were of coin shape and circular shapes.

Day 2 - In most of the cases, the shape of the Neikkuri observed in one minute, three minutes, seven minutes were of coin shape and circular shapes.

Day 3 - In most of the cases, the shape of the Neikkuri observed in one minute, three minutes, seven minutes were of coin shape and circular shapes.

In most of the cases, according to pH range between 5.1 – 6 and 6-7, the shape of the Neikkuri observed in one minute, three minute, seven minutes were of coin shape.

In most of the cases, according to Specific gravity range between 1.003 – 1.010 the shape of the Neikkuri observed in one minute, three minute and seven minutes were of coin shape. In ten minutes were of circular shape. In most of the cases, according to Specific gravity range between 1.011 – 1.015 the shape of the Neikkuri observed in three minutes, seven minutes and ten minutes were of coin shape and Vacuolated.

In the control group of normal subjects’ samples no vacuolated sieve pattern was observed. Hence it may be construed that it is the pitham that is responsible for the vacuoles forming in Neikkuri patterns. As kalladaippu is one of Pitha disease, vacuolated sieve patterns were formed in neikkuri examination.
DISCUSSION

Neerkkuri and Neikkuri are exclusively Siddha methods of diagnostic urine examination propounded by Theriyar. This is an efficient method in elucidating the prognosis of the given disease.

Out of the 80 cases screened, 40 diagnosed cases will be selected from the outpatient department and 20 normal subjects screened, 10 normal subjects will be selected from this study of Neerkkuri urine analysis and Neikkuri.

Among 40 cases, 15% of cases came under 51-60 yrs, 32.5% of cases came under 41-50 yrs and 52.5% of cases came under 20-40yrs.

Among 40 cases, 15% of cases were females, 25% of cases were males. Among 40 cases, 85% of cases came under Pitha kaalam ie., 34-66yrs, 15% of cases fall under Vatha kaalam 0-33yrs. Among 40 cases, 30% of cases had the naadinadai of Vatha pitham, 70% cases had Pitha vatham, 0% of cases had Kaba pitham. Among 40 cases, the colour of the urine were 2.5% colourless urine, 22.5% straw colour urine, 70% straw yellow colour urine and 5% dark yellow colour urine.

Among 40 cases, the odour of the urine 40% had aromatic odour, 55% ammonicalodour, and remaining 5% putrid odour.

Among 40 cases, the specific gravity of the urine 7.5% had specific gravity between 1.003-1.010, 30% had specific gravity between 1.011-1.015, 57.5% had specific gravity between 1.016-1.020 and 5% had specific gravity between 1.021-1.025.

Among 40 cases the froth of the urine is absent in 87.50% and remaining 12.50% of urine had froth.

Among 40 cases 55% of cases passed 500ml -1 lit of urine per day, 37.5% of cases passed 1.1-1.5 lit per day and remaining 7.5% of cases passed 1.6-2lit per day

Among 40 cases, 27.5% of cases had $P^H$ between 5.1-6, 37.5% of cases had $P^H$ between 6.1-7 and remaining 35% of cases had $P^H$ above 7.
Day 1:

Among 40 cases, the shape of the Neikkuri in one minute, 65% of cases had coin shape, 7.5% of cases had circular, 12.5% of cases had vacuolated sieve, 2.5% of cases had kidney shape and 10% of cases had pearl shape.

In three minutes, 57.5% of cases had coin shape, 7.5% of cases had pearl, 15% of cases had vacuolated sieve, 5% of cases had kidney shape and 2.5% of cases had pearl shape.

In seven minutes, 52.5% of cases had coin shape, 5% of cases had pearl, 27.5% of cases had vacuolated sieve, 2.5% had leaf, 5% of cases had egg and 2.5% of cases had circular.

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.

Day 2:

Among 40 cases, the shape of the Neikkuri in one minute, 57.5% of cases had coin shape, 5% of cases had circular, 10% of cases had vacuolated sieve, 2.5% had bottle guard, 2.5% had leaf, 2.5% had egg, 2.5% of cases had kidney shape and 17.5% of cases had pearl shape.

In three minutes, 42.5% of cases had coin shape, 7.5% of cases had pearl, 27.5% of cases had vacuolated sieve, 2.5% had bottle guard, 5% had leaf, 2.5% had egg, 2.5% of cases had kidney shape and 2.5% of cases had circular.

In seven minutes, 25% of cases had coin shape, 5% of cases had pearl, 45% of cases had vacuolated sieve, 2.5% had bottle guard, 5% of cases had egg, 5% had oval and 7.5% of cases had circular.

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.
Day 3:

Among 40 cases, the shape of the Neikkuri in one minute, 50% of cases had coin shape, 2.5% of cases had circular, 12.5% of cases had vacuolated sieve, 2.5% had worm and 17.5% of cases had pearl shape.

In three minutes, 30% of cases had coin shape, 5% of cases had pearl, 37.5% of cases had vacuolated sieve, 2.5% had worm, 5% had oval, 7.5% had leaf, 5% had egg, 2.5% of cases had kidney shape and 5% of cases had circular.

In seven minutes, 32.5% of cases had coin shape, 5% of cases had pearl, 50% of cases had vacuolated sieve, 2.5% of cases had egg, 5% had kidney and 2.5% of cases had circular.

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves.

Among sample of 40 cases, 23 samples were of an pH value between 6 – 7. In this 23 cases Neikkuri patterns observed in one minute, 13% had coin, 17.5% had vacuolated sieve, 5% had pearl and 2.5% had circular shapes.

In three minutes, 42.5% had coin, 12.5% had vacuolated sieve, 2.5% had pearl.

In seven minutes, 27.5% had coin, 12.5% had vacuolated sieve, 7.5% had pearl, 2.5% had kidney and 7.5% had circular shapes.

In most of the cases, according to pH value between 6-7 the shape of the Neikkuri observed in one minute 32.5%, in three minute 42.5% and seven minutes 27.5% were of coin shapes.

Among sample of 40 cases, 7 samples were of an pH value above 7. In this 7 cases Neikkuri patterns observed in one minute, 12.5% had coin, 2.5% had vacuolated sieve, 2.5% had pearl.

In three minutes, 10% had coin, 5% had vacuolated sieve, 2.5% had kidney.

In seven minutes, 12.5% had coin, 2.5% had vacuolated sieve and 2.5% had circular shapes.
In most of the cases, according to pH value above 7 the shape of the Neikkuri observed in one minute 12.5%, in three minute 10% and seven minutes 12.5% were of coin shapes.

Among sample of 40 cases, 10 samples were of an pH value between 5-6. In this 10 cases Neikkuri patterns observed in one minute, 15% had coin, 7.5% had vacuolated sieve, 2.5% had pearl.

In three minutes, 12.5% had coin, 5% had vacuolated sieve, 5% had pearl and 2.5% had circle.

In seven minutes, 12.5% had coin, 10% had vacuolated sieve and 2.5% had circular shapes.

In most of the cases, according to pH value between 5-6 the shape of the Neikkuri observed in one minute 15%, in three minute 12.5% and seven minutes 12.5% were of coin shapes.

Among sample of 40 cases, 8 samples were of specific gravity value between 1.003-1.010. In this 8 cases Neikkuri patterns observed in one minute, 5% had coin, 5% had vacuolated sieve, 5% had pearl, 2.5% had circle and 2.5% had kidney.

In three minutes, 7.5% had coin, 10% had vacuolated sieve and 2.5% had kidney.

In seven minutes, 7.5% had coin, 10% had vacuolated sieve and 2.5% had pearl.

In most of the cases, according to the shape of specific gravity value between 1.003-1.010 the Neikkuri observed in one minute 5%, in three minutes 10% and seven minutes 10% were of vacuolated sieve.

Among sample of 40 cases, 32 samples were of specific gravity value between 1.010-1.020. In this 32 cases Neikkuri patterns observed in one minute, 50% had coin, 15% had vacuolated sieve, 10% had pearl, 2.5% kidney and 2.5% had circular shapes.

In three minutes, 45% had coin, 17.5% had vacuolated sieve, 12.5% had pearl and 5% had kidney.
In seven minutes, 40% had coin, 18% had vacuolated sieve, 10% had pearl, 5% had kidney and 5% had circular shapes.

In most of the cases, according to specific gravity value between 1.010-1.020 the shape of the Neikkuri observed in one minute 50%, in three minute 45% and seven minutes 40% were of coin shapes.

In most of the cases, the shape of the Neikkuri observed in one minute, three minutes and seven minutes were of coin and vacuolated sieves in both group 1 and 2.

In most of the cases, the Neikkuri observed in one minute, three minutes and seven minutes were of vacuolated sieves in day 1, day 2 and day 3.

Among 120 samples of 40 cases, the nature of spreading were slow in 20% and fast in 80%.

When more solutes are mixed in the urine, the specific gravity tends to increase and the surface tension is likely to decrease. When the urine becomes more diluted, the specific gravity decreases and the surface tension tends to increase. Therefore the oil drop is more likely to spread fast.

The reason for the difference in the neikkuri patterns of a given patient on three consecutive days could be dietary variations. Theran mentioned about various patterns of neikkuri formation in his treatise. In that ring shaped patterns are said to be associated with the Pitha humour in the urine. For a neikkuri shape to take a ring pattern there needs to be a large vacuole fill in the spreaded expanse of the instilled oil drop. So vacuole of a larger form is predominantly presumed to be because of Pitham in the urine.

**Healthy volunteers:**

In all of the cases, the colour of the urine observed were straw colour. In all of the cases, the odour of the urine observed were aromatic odour. The odour obtained were normal. In all of the cases, the volume of the urine passed per day were 1.1-1.5 litres. In most of the cases, the pH of the urine observed were between 5.1 – 6. The result which obtained were normal. In most of the cases, the Specific gravity of the urine observed were of 1.010 – 1.020. The result obtained were normal.
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In the control group of normal subjects’ samples no vacuolated sieve pattern was observed. Hence it may be construed that it is the pitham that is responsible for the vacuoles forming in Neikkuri patterns. As kalladaippu is one of Pitha disease, vacuolated sieve patterns were formed in neikkuri examination.
CONCLUSION

In Neerkkuri colour, odour, froth, specific gravity, volume and pH were observed. The urine was mostly straw yellow colour and ammonical odour. The froth was mostly absent and the specific gravity was mostly ranged from 1.010-1.020. The volume of urine passed per day was mostly 500ml-1.5 lit per day. The pH was mostly ranged between 6-7.

The nature of spreading were fast in most of the kalladaippu cases which is because of pitha. In most of the cases, the shape of the Neikkuri observed were of coin and vacuolated sieves.

The reason for the difference in the neikkuri patterns of a given patient on three consecutive days could be dietary variations.

For a neikkuri shape to take a ring pattern there needs to be a large vacuole fill in the spreaded expanse of the instilled oil drop. So vacuole of a larger form is predominantly presumed to be because of Pitham in the urine. From this study, i conclude that the kalladaipppu has got mixed prognosis.

This study may throw new lights to Standardize the Neerkkuri and Neikkuri and provide a lead to carry out further researches in Neerkkuri and Neikkuri by the upcoming generation.
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- Agathiyar 2000
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- Theraiyar vaagadam
- Dhanvandri Vaithiyam
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A STUDY ON NEERKKURI NEIKKURI DIAGNOSTIC METHODOLOGY IN KALLADAIPPU – RENAL CALCULI

FORM I
SCREENING AND SELECTION PROFORMA

10. Address: ____________________________________________________________
_______________________________________________________________
11. Contact Nos: __________________________________________________________________
12. E-mail : ___________________________________________________________________

INCLUSION CRITERIA:

1. Age – 20 to 60 years
2. History of renal colic pain
3. Presence of renal stone detected by ultrasonogram
4. Willing to do ultrasonogram & radiographic study
5. Willing to give blood and urine samples for laboratory investigations
EXCLUSION CRITERIA:

1. Co-existing other kidney disease

2. Other major systemic illness

Date:

Signature of Investigator

Signature of Lecturer
NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47.

DEPARTMENT OF NOI NAADAL

A STUDY ON NEERKKURI NEIKKURI DIAGNOSTIC METHODOLOGY IN KALLADAIPPU-RENAL CALCULI

FORM I-A

HISTORY PROFORMA

1. Sl.No of the case: _______________

2. Name: __________________________ Height: ___ cms  Weight: ___ Kgs  BMI: ___

3. Age (years): _________  DOB  

   D  D  M  M  Y  E  A  R

4. Educational Status:

   1) Illiterate □  2) Literate □  3) Student □  4) Graduate/Postgraduate □

5. Nature of work:

   1) Sedentary work □

   2) Field work with physical labour □

   3) Field work Executive □

6. Complaints and Duration:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
7. History of present illness:

_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

8. History of Past illness:

<table>
<thead>
<tr>
<th>Condition</th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ischemic heart disease</td>
<td></td>
<td></td>
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<tr>
<td>Dyslipidaemia</td>
<td></td>
<td></td>
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<tr>
<td>Jaundice</td>
<td></td>
<td></td>
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<tr>
<td>Bronchial asthma</td>
<td></td>
<td></td>
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<tr>
<td>Any drug allergy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any surgeries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any major illnesses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trauma</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Habits:

<table>
<thead>
<tr>
<th>Habit</th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcoholic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Addiction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betel nut chewer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of diet</td>
<td>V</td>
<td>NV</td>
</tr>
</tbody>
</table>
10. Personal history:

   Marital status: Married  Unmarried  
   
   No. of children: Male: _____  Female: _____

11. Family history:

   History of diabetes mellitus  
   Father  Yes  No  
   Mother  
   Others:  

12. Menstrual & Obstetric history:

   Age at menarche _______ years  
   Gravidity  Parity  
   Duration of the menstrual cycle  
   
   Constancy of cycle duration: 1. Regular  2. Irregular

13. GENERAL ETIOLOGY FOR KALLADAIPPU:

   YES  NO
   Intake of contaminated water  
   Intake of stone crystals, bone, hair and sand mixed food  
   Intake of decayed food  
   Intake of vatha induced food

Date:  Signature of Lecturer
A STUDY ON NEERKKURI NEIKKURI DIAGNOSTIC METHODOLOGY IN KALLADAIPPU – RENAL CALCULI

FORM II

CLINICAL ASSESSMENT

1. Serial No: ________

2. Name: ________________

3. Date of birth: D D M M Y E A R

4. Age: _______ years

5. Date: ___________

GENERAL EXAMINATION:

1. Pallor:

2. Icterus:

3. Cyanosis:

4. Lymphadenopathy:

5. Pedal edema:

6. Clubbing:

7. Jugular vein pulsation:

8. Temperature (°F):

9. Pulse rate:

10. Heart rate

11. Respiratory rate:
12. Blood pressure

13. Height: _____ cms.

14. Weight: _____ kgs

15. BMI ______

VITAL ORGANS EXAMINATION

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Heart</td>
<td>□</td>
<td>□ [__] ________</td>
</tr>
<tr>
<td>2. Lungs</td>
<td>□</td>
<td>□ [__] ________</td>
</tr>
<tr>
<td>3. Brain</td>
<td>□</td>
<td>□ [__] ________</td>
</tr>
<tr>
<td>4. Liver</td>
<td>□</td>
<td>□ [__] ________</td>
</tr>
<tr>
<td>5. Kidney</td>
<td>□</td>
<td>□ [__] ________</td>
</tr>
<tr>
<td>6. Spleen</td>
<td>□</td>
<td>□ [__] ________</td>
</tr>
<tr>
<td>7. Stomach</td>
<td>□</td>
<td>□ [__] ________</td>
</tr>
</tbody>
</table>

SYSTEMIC EXAMINATION:

1. Cardio Vascular System [__] ________

2. Respiratory System [__] ________

3. Gastrointestinal System [__] ________

4. Central Nervous System [__] ________

5. Urogenital System [__] ________

6. Endocrine System [__] ________

7. Musculoskeletal system [__] ________
SIDDHA SYSTEM OF EXAMINATION

[1] ENVAGAI THERVU [EIGHT-FOLD EXAMINATION]

I. NAADI (KAI KURI) (RADIAL PULSE READING)
(a) Naadi Nithanam (Pulse Appraisal)

1. Kalam (Pulse reading season)

   Perumpozhuthu:
   1. Kaarkaalam (Rainy season) □
   2. Koothirkaalam (Autumn) □
   3. Munpanikaalam (Early winter) □
   4. Pinpanikaalam (Late winter) □
   5. Ilavenirkaalam (Early summer) □
   6. Muthuvenirkaalam (Late summer) □

   Sirupozhuthu:
   1. Kaalai □
   2. Mathiyam □
   3. Maalai □
   4. Erpaadu □
   5. Iravu □
   6. Vaikarai □

2. Desam (Climate of the patient’s habitat)

   1. Kulir (Temperate) □
   2. Veppam (Hot) □

3. Vayathu (Age)
   1. 1-33yrs □
   2. 34-66yrs □
   3. 67-100yrs □

4. Udal Vanmai (General body condition)

   1. Iyyalbu (Normal built) □
   2. Valivu (Robust) □
   3. Melivu (Lean) □
(b) Naadi nadai (Pulse Play)

1. Vanmai (Expansile Nature)

1. Vatham Vanmai □ Menmai □
2. Pitham Vanmai □ Menmai □
3. Kabam Vanmai □ Menmai □

2. Panbu (Habit)

1. Thannadai (Playing in) □ 2. Puranadai (Playing out) □ 3. Illaitthal (Feeble) □
4. Kathithal (Swelling) □ 5. Kuthithal (Jumping) □ 6. Thullal (Frisking) □
7. Azhutthal (ducking) □ 8. Padutthal (Lying) □ 9. Kalatthal (Blending) □
13. Pakkammokku (Swerving)

3. Naadi nadai


Any other findings ________________________

II. NAA (TONGUE)

1. Maa Padinthiruthal (Coatedness) 1. Present □ 2. Absent □
3. Suvai (Taste sensation) 1. Pulippu (Sour) □ 2. Kaippu (Bitter) □ 3. Inippu (Sweet) □
4. Vedippu (Fissure) 1. Absent □ 2. Present □
5. Vai neer ooral               1. Normal               2. Increased               3. Reduced
(Salivation)

III. NIRAM (COMPLEXION)
1. Karuppu                    2. Manjal
(Dark-Vatham)                (Yellowish-Pitham)
3. Veluppu                    4. Thontham
(Fair-Kabam)

Any other findings

IV. MOZHI (VOICE)
1. Sama oli                        2. Urattha oli
(Medium pitched)             (High pitched)
3. Thazhantha oli               4. Thontham
(Low pitched)

Any other findings

V. VIZHI (EYES)
1. Niram (Venvizhi)
(Discolouration)
1. Karuppu                    2. Manjal
(Dark)                      (Yellow)
3. Sivappu                    4. Velluppu
(Red)                       (White)
5. No Discoloration

2. Kanneer
(Tears)
1. Normal                   2. Increased               3. Reduced

3. Erichchal
(Burning sensation)
1. Present                   2. Absent

4. Peelai seruthal
(Mucus excrements)
1. Present                   2. Absent

Any other findings
## VI. MEI KURI –SPARISAM (PHYSICAL SIGNS)

<table>
<thead>
<tr>
<th>Sign</th>
<th>1. Absent</th>
<th>2. Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veppam (Warmth)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitham (Mild)</td>
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<td>Migu (Moderate)</td>
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<tr>
<td>Thatpam (Low)</td>
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<tr>
<td>Viyarvai (Sweat)</td>
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<tr>
<td>Increased</td>
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<tr>
<td>Normal</td>
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<tr>
<td>Reduced</td>
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<tr>
<td>Thodu vali (Tenderness)</td>
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<tr>
<td>Absent</td>
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<tr>
<td>Present</td>
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</tbody>
</table>

Any other findings: __________________________

## VII. MALAM (STOOLS)

<table>
<thead>
<tr>
<th>Stool</th>
<th>1. Present</th>
<th>2. Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niram (Color)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karuppu (Dark)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manjal (Yellowish)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sivappu (Reddish)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Velluppu (Pale)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sikkal (Constipation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sirutthal (Poorly formed stools)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kalichchal (Loose watery stools)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seetham (Watery and mucoid excrements)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vemmai (Warmth)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of habitual constipation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passing of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Mucous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Blood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any other findings: __________________________
VIII. MOOTHIRAM (URINE):

DAY 1

(a) NEER KURI (PHYSICAL CHARACTERISTICS):

1. Niram (colour)

<table>
<thead>
<tr>
<th>Colour</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colourless</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milky purulent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>orange</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dark brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bright red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown red or yellow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pale yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Manam (odour)  

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Edai (Specific gravity)  

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (1.010-1.025)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Specific gravity (&gt;1.025)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Specific gravity (&lt;1.010)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low and fixed Specific gravity (1.010-1.012):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Alavu(volume)  

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (1.2-1.5 lt/day)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyuria (&gt;2lt/day)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oliguria (&lt;500ml/day)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. Nurai (froth)  

<table>
<thead>
<tr>
<th>Froth</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cloudy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Enjal (deposits)  

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any other findings  
________________________

(b) NEI KURI (oil spreading sign):

TIME:

1. Urine collection:

2. Oil drop:

3. Picture taken:  

<table>
<thead>
<tr>
<th>Time</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 minute</td>
<td></td>
</tr>
<tr>
<td>3 minutes</td>
<td></td>
</tr>
<tr>
<td>5 minutes</td>
<td></td>
</tr>
<tr>
<td>7 minutes</td>
<td></td>
</tr>
<tr>
<td>10 minutes</td>
<td></td>
</tr>
</tbody>
</table>
DAY II

(a) NEER KURI (PHYSICAL CHARACTERISTICS):

1. Niram (colour)

<table>
<thead>
<tr>
<th>Colour</th>
<th>Box 1</th>
<th>Box 2</th>
<th>Box 3</th>
<th>Box 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colourless</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Milky purulent</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>orange</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Red</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Greenish</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>dark brown</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Bright red</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Black</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Brown red or yellow</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Pale yellow</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

2. Manam (odour)

<table>
<thead>
<tr>
<th>Odour</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonical</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Fruity</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Others</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>

3. Edai (Specific gravity)

<table>
<thead>
<tr>
<th>Specific gravity</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (1.010-1.025)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>High Specific gravity (&gt;1.025)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Low Specific gravity (&lt;1.010)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Low and fixed Specific gravity (1.010-1.012)</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

4. Alavu(volume)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (1.2-1.5 lt/day)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Polyuria (&gt;2lt/day)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Oliguria (&lt;500ml/day)</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
5. Nurai (froth) | Yes | No
| Froth | ☐ | ☐ |
| Clear | ☐ | ☐ |
| Cloudy | ☐ | ☐ |

6. Enjal (deposits) | Yes | No

Any other findings | ____________________________ |

(b) NEI KURI (oil spreading sign):

TIME:

1. Urine collection:

2. Oil drop:

3. Picture taken: | Shape
| 1 minute: | __________________ |
| 3 minutes: | __________________ |
| 5 minutes: | __________________ |
| 7 minutes: | __________________ |
| 10 minutes: | __________________ |
**DAY III**

(a) **NEER KURI (PHYSICAL CHARACTERISTICS):**

1. **Niram (colour)**

<table>
<thead>
<tr>
<th>Colour</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colourless</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Milky purulent</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Orange</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Red</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Greenish</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Dark brown</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Bright red</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Black</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Brown red or yellow</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Pale yellow</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

2. **Manam (odour)**

- Ammonical: ☐ ☐ ☐
- Fruity: ☐ ☐ ☐
- Others: ________________

3. **Edai (Specific gravity)**

- Normal (1.010-1.025): ☐ ☐ ☐
- High Specific gravity (>1.025): ☐ ☐ ☐
- Low Specific gravity (<1.010): ☐ ☐ ☐
- Low and fixed Specific gravity (1.010-1.012): ☐ ☐ ☐

4. **Alavu(volume)**

- Normal (1.2-1.5 lt/day): ☐ ☐ ☐
- Polyuria (>2lt/day): ☐ ☐ ☐
- Oliguria (<500ml/day): ☐ ☐ ☐
5. Nurai(froth)  
Yes  No  
Froth : ☐ ☐  
Clear : ☐ ☐  
Cloudy : ☐ ☐  

6. Enjal (deposits) : Yes  No  
☐ ☐  

Any other findings  _________________________

(b) NEI KURI (oil spreading sign):

TIME:

1. Urine collection:

2. Oil drop:

3. Picture taken:  

<table>
<thead>
<tr>
<th>Time</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 minute:</td>
<td>___________</td>
</tr>
<tr>
<td>3 minutes:</td>
<td>___________</td>
</tr>
<tr>
<td>5 minutes:</td>
<td>___________</td>
</tr>
<tr>
<td>7 minutes:</td>
<td>___________</td>
</tr>
<tr>
<td>10 minutes:</td>
<td>___________</td>
</tr>
</tbody>
</table>
[2]. MANIKADAI NOOL (Wrist circummetric sign): ____ fbs

[3]. THATHUVA IYALBU:

MANOTHATHUVAM

- Sathuva Gunam
- Rajo Gunam
- Thamo Gunam

YAKKAI (SOMATIC TYPES)

<table>
<thead>
<tr>
<th>Vatha constitution</th>
<th>Pitha constitution</th>
<th>Kaba constitution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lean and lanky built</td>
<td>Thin covering of bones and joints by soft tissue</td>
<td>Plumpy joints and limbs</td>
</tr>
<tr>
<td>Hefty proximities of limbs</td>
<td>Always found with warmth, sweating and offensive body odour</td>
<td>Broad forehead and chest</td>
</tr>
<tr>
<td>Cracking sound of joints on walking</td>
<td>Wrinkles in the skin</td>
<td>Sparkling eyes with clear sight</td>
</tr>
<tr>
<td>Dark and thicker eye lashes</td>
<td>Red and yellow admixed complexion</td>
<td>Lolling walk</td>
</tr>
<tr>
<td>Dark and light admixed complexion</td>
<td>Easily suffusing eyes due to heat and alcohol</td>
<td>Immense strength despite poor eating</td>
</tr>
<tr>
<td>Split hair</td>
<td>Sparse hair with greying</td>
<td>High tolerance to hunger, thirst and fear</td>
</tr>
<tr>
<td>Clear words</td>
<td>Intolerance to hunger, thirst and heat</td>
<td>Exemplary character with good memory power</td>
</tr>
<tr>
<td>Scant appetite for cold food items</td>
<td>Inclination towards perfumes like sandal</td>
<td>More liking for sweet taste</td>
</tr>
<tr>
<td>Poor strength despite much eating</td>
<td>Slender eye lashes</td>
<td>Husky voice</td>
</tr>
<tr>
<td>Loss of libido</td>
<td>Pimplles and moles are plenty</td>
<td></td>
</tr>
<tr>
<td>In generosity</td>
<td>Sleeping with eyes half closed</td>
<td></td>
</tr>
</tbody>
</table>

RESULTANT SOMATIC TYPE: _____________________________
### [4]. IYMPORIGAL/IYMPULANGAL:
(Penta sensors and its modalities)

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mei (Skin)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaai (Mouth/Tongue)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kan (Eyes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mooku (Nose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sevi (Ears)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### [5]. KANMENTHIRIYANGAL /KANMAVIDAYANGAL
(Motor machinery and its execution)

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kai (Hands)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaal (Legs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaai (Mouth)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eruvai (Analepy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karuvaai (Birth canal)</td>
<td></td>
<td></td>
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</tbody>
</table>

### [6] GUNAM

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sathuva Gunam</td>
<td></td>
</tr>
<tr>
<td>Rajo Gunam</td>
<td></td>
</tr>
<tr>
<td>Thamo Gunam</td>
<td></td>
</tr>
</tbody>
</table>
### A. VALI

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Praanan</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(Heart centre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Abaanan</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(Matedial of muladhar centre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Samaanan</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(Navel centre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Udhaanan</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(Forehead centre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Viyaanan</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(Throat centre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Naahan</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(Higher intellectual function)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Koorman</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(Air of yawning)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Kirukaran</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(Air of salivation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Devathathan</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(Air of laziness)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Dhananjeyan</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(Air that acts on death)</td>
<td></td>
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</tr>
</tbody>
</table>
### B. AZHAL

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Analapiatham</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Gastric juice)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Prasakapiatham</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Bile)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Ranjakapiatham</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Haemoglobin)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Aalosakapiatham</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Aqueous Humour)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Saathakapiatham</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Life energy)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### C. IYYAM

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Avalambagam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Serum)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Kilethagam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Saliva)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Pothagam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lymph)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Tharpagam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Cerebrospinal fluid)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Santhigam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Synovial fluid)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**[8] UDAL THATHUKKAL**

1. SAARAM (CHYLE):

<table>
<thead>
<tr>
<th>INCREASED SAARAM (CHYLE)</th>
<th>DECREASED SAARAM (CHYLE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of appetite</td>
<td>Loss weight</td>
</tr>
<tr>
<td>Excessive salivation</td>
<td>Tiredness</td>
</tr>
<tr>
<td>Loss of perseverance</td>
<td>Dryness of the skin</td>
</tr>
<tr>
<td>Excessive heaviness</td>
<td>Diminished activity of the sense organs</td>
</tr>
<tr>
<td>White musculature</td>
<td></td>
</tr>
<tr>
<td>Cough, dyspnea, excessive sleep</td>
<td></td>
</tr>
<tr>
<td>Weakness in all joints of the body</td>
<td></td>
</tr>
</tbody>
</table>

1. SAARAM: INCREASED [ ] DECREASED [ ]

2. SENNEER (BLOOD):

<table>
<thead>
<tr>
<th>INCREASED SENNEER (BLOOD)</th>
<th>DECREASED SENNEER (BLOOD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boils in different parts of the body</td>
<td>Anemia</td>
</tr>
<tr>
<td>Anorexia</td>
<td>Tiredness</td>
</tr>
<tr>
<td>Mental disorder</td>
<td>Neuritis</td>
</tr>
<tr>
<td>Spleenomegaly</td>
<td>Lassitude</td>
</tr>
<tr>
<td>Colic pain</td>
<td>Pallor of the body</td>
</tr>
<tr>
<td>Increased pressure</td>
<td></td>
</tr>
<tr>
<td>Reddish eye and skin</td>
<td></td>
</tr>
<tr>
<td>Jaundice</td>
<td></td>
</tr>
<tr>
<td>Haematuria</td>
<td></td>
</tr>
</tbody>
</table>

2. SENNEER: INCREASED [ ] DECREASED [ ]
### 3. OON(MUSCLE):

<table>
<thead>
<tr>
<th>INCREASED OON (MUSLE)</th>
<th>DECREASED OON (MUSLE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical lymphadenitis</td>
<td>Impairment of sense organs</td>
</tr>
<tr>
<td>Vernical ulcer</td>
<td>Joint pain</td>
</tr>
<tr>
<td>Tumour in face, abdomen, thigh, genitalia</td>
<td>Jaw, thigh and genitalia gets shortened</td>
</tr>
<tr>
<td>Hyper muscular in the cervical region</td>
<td></td>
</tr>
</tbody>
</table>

#### 3. OON: INCREASED □ DECREASED □

### 4. KOZHUPPU(ADIPOSE TISSUE):

<table>
<thead>
<tr>
<th>INCREASED KOZHUPPU (ADIPOSE TISSUE)</th>
<th>DECREASED KOZHUPPU (ADIPOSE TISSUE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical lymph adenitis</td>
<td>Pain in the hip region</td>
</tr>
<tr>
<td>Vernical ulcer</td>
<td>Disease of the spleen</td>
</tr>
<tr>
<td>Tumour in face, abdomen, thigh, genitalia</td>
<td></td>
</tr>
<tr>
<td>Hyper muscular in the cervical region</td>
<td></td>
</tr>
<tr>
<td>Dyspnoea</td>
<td></td>
</tr>
<tr>
<td>Loss of activity</td>
<td></td>
</tr>
</tbody>
</table>

#### 4. KOZHUPPU: INCREASED □ DECREASED □
5. **ENBU (BONE):**

<table>
<thead>
<tr>
<th>INCREASED ENBU (BONE)</th>
<th>DECREASED ENBU (BONE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth in bones and teeth</td>
<td>Bones diseases</td>
</tr>
<tr>
<td></td>
<td>Loosening of teeth</td>
</tr>
<tr>
<td></td>
<td>Nails splitting</td>
</tr>
<tr>
<td></td>
<td>Falling of hair</td>
</tr>
</tbody>
</table>

5. **ENBU:** INCREASED □ DECREASED □

6. **MOOLAI (BONE MARROW):**

<table>
<thead>
<tr>
<th>INCREASED MOOLAI (BONE MARROW)</th>
<th>DECREASED MOOLAI (BONE MARROW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heaviness of the body</td>
<td>Osteoporosis</td>
</tr>
<tr>
<td>Swollen eyes</td>
<td>Sunken eyes</td>
</tr>
<tr>
<td>Swollen phalanges (chubby fingers)</td>
<td></td>
</tr>
<tr>
<td>Oliguria</td>
<td></td>
</tr>
<tr>
<td>Non healing ulcer</td>
<td></td>
</tr>
</tbody>
</table>

6. **MOOLAI:** INCREASED □ DECREASED □

7. **SUKKILAM / SURONITHAM (SPERM OR OVUM):**

<table>
<thead>
<tr>
<th>INCREASED SUKKILAM/SURONITHAM (SPERM OR OVUM)</th>
<th>DECREASED SUKKILAM/SURONITHAM (SPERM OR OVUM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infatuation and lust towards women / men</td>
<td>Failure in reproduction</td>
</tr>
<tr>
<td>Urinary calculi</td>
<td>Pain in the genitalia</td>
</tr>
</tbody>
</table>

7. **SUKKILAM / SURONITHAM:** INCREASED □ DECREASED □
### DHASANAADI:

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Idagalai</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Pingalai</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Suzhumunai</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Siguva</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Purudan</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Kaanthari</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Atthi</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Alambudai</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Sangini</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Kugu</td>
<td></td>
</tr>
</tbody>
</table>

### KOSANGAL:

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Annamayakosam</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Praanamaya kosam</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Manomayakosam</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Vignananmayakosam</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Anandhamayakosam</td>
<td></td>
</tr>
</tbody>
</table>
## MUKKUTRA MIGU GUNAM

### I. Vali Migu Gunam

<table>
<thead>
<tr>
<th></th>
<th>1. Present</th>
<th>2. Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Emaciation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Complexion – blackish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Desire to take hot food</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Shivering of body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Abdominal distension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Constipation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Insomnia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Weakness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Defect of sense organs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Giddiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Lake of interest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### II. Vali Kurai Gunam

1. Body pain
2. Diminished voice
3. Diminished work
4. Delirium
5. Arivu mangal
6. Features of increased Kapha

### III. Pitham Migu Gunam

1. Yellowish discolouration of skin
2. Yellowish discolouration of the eye
3. Yellow coloured urine
4. Yellowishness of faeces
5. Increased appetite
6. Increased thirst
7. Burning sensation over the body
8. Sleep disturbance

IV. Pitham Kurai Gunam
1. Indigestion
2. Chillness
3. Discolouration
4. Disranged Kapha

V. Kapham Migu gunam
1. Increased salivary secretion
2. Reduced activeness
3. Heaviness of the body
4. Body colour – fair complexion
5. Chillness of the body
6. Reduced appetite
7. Eraippu
8. Increased sleep

VI. Kapham Kurai gunam
1. Giddiness
2. Loss of fluid in the Joints
3. Increased Sweating
4. Palpitation
[10]. NOIUTRA KALAM

3. Munpanikaalam (Dec15-Feb14) □ 4. Pinpanikaalam (Feb15-Apr14) □
5. Ilavanirkaalam (Apr15-June14) □ 6. Muthuvenirkaalam (June15-Aug14) □

[11]. NOIUTRA NILAM

1. Kurunji (Hilly terrain) □ 2. Mullai (Forest range) □ 3. Marutham (Plains) □
4. Neithal (Coastal belt) □ 5. Paalai (Desert) □

[12]. Date of Birth: □ □ □ □ □ □ □

[13]. Time of Birth: □□ AM □□ PM □□

[14]. Place of Birth: _____________________

[15]. Rasi (Zodiac Sign)

[16]. Natchathiram(birth stars):

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Aswini</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Barani</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Karthikai</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Rohini</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Mirugaseeradam</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Thiruvathirai</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Punarpoosam</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Poosam</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Ayilyam</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Makam</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Pooram</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Utthiram</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Astham</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Chithirai</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Swathi</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Visakam</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Anusam</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Kettai</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Moolam</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Pooradam</td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>Uthiradam</td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>Thiruvonam</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>Avittam</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>Sadayam</td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>Poorattathi</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>Uthirattathi</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>Revathi</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>Not Known</td>
<td></td>
</tr>
</tbody>
</table>

Date: 

Signature of Lecturer
HEMATOLOGY:

Hemoglobin: .............gm %

Total RBC count: .............millions cells / cu.mm

Total WBC count: .............cells / cu.mm

Differential count:

Polymorphs ....%  
Lymphocytes ......%  
Monocytes ......%  
Basophils ......%  
Eosinophils ......%

Platelet count: ..........lakhs cells / cu.mm

ESR (mm)  
½ Hr: 
1 Hr: 

BIO CHEMISTRY:

Sugar (F) .............mg%  
PP .............mg%
Total cholesterol :……..mg %
HDL :….. mg %
LDL :.........mg %
VLDL :…… mg%
TGL :…… mg%
Uric acid :…….. mg %

**Renal function test:**
Urea :…….. mg %
Creatinine :…….mg %

**Liver function test:**
SGOT :........IU
SGPT :........IU
Alkaline phosphatise :........IU
Serum Total Protein : ............gm %
Serum Albumin :............gm %
Serum Globulin :............gm %

**URINALYSIS:**

**Physical :**
Colour :
Appearance :
Specific Gravity:
Ph :
Odour :
Chemical:
Protein :
Glucose :
Ketones :
Bile salts :
Bile pigments :
Urobilinogen :
Occult blood:

Microscopic:
Deposits :

MOTION :
Ova:
Cyst:
Occult blood:

SPECIFIC INVESTGATIONS:

ULTRASONOGRAM –ABDOMEN:

X-RAY-KUB:

Date:                                                                                   Signature of the Doctor:
PATIENT INFORMATION SHEET

PURPOSE OF RESEARCH AND BENEFITS:

The diagnostic research study in which your participation is proposed to assess the accuracy of the neikuri procedure adopted in KALLADAIPPU patients. It is expected that you would benefit from this study. Knowledge gained from this study would be of benefit to patients suffering from such conditions for the diagnosis and prognosis.

STUDY PROCEDURE:

You will be interviewed and examined as OP and IP patients at the study centre. At the first visit the physician will conduct a brief physical examination and assess the condition followed by blood pressure and routine blood and urine analysis. After matching the inclusion criteria you will be included in this study and neikuri procedure is done by the collection of your urine sample again.

POSSIBLE RISK:

During this study there may be a minimum pain to you while drawing blood sample.

CONFIDENTIALITY:

Your medical records will be treated with confidentiality and will be revealed only to other doctors / scientists. The results of this study may be published in a scientific journal, but you will not be identified by your name.
YOUR PARTICIPATION AND YOUR RIGHTS:

Your participation in this study is voluntary and you may be withdrawn from this study anytime without having to give reasons for the same. You will be informed about the findings that occur during the study. If you do agree to take part in this study, your health record will need to made available to the investigators. If you don’t wish to participate at any stage, the level of care you receive will in no way to be affected.

The Ethics committee cleared the study for undertaking at OPD and IPD, NIS. Should any question arise with regards to this study you contact following person.
உள்ளிட்ட நிறுவனத்தின் பணியாளர்:

உள்ளிட்ட நிறுவனத்தின் பணியாளர் "கொண்டட்டி நிற்கிடத் பிரபேண அமைப்பை" செய்து வருகையை வரைபட்டதற்கு பயிர்ப்பை கூறியது ஐந்து பயிர்ப்பு. ஐந்து பயிர்ப்பு கொண்டட்டில் நிறுவன அமைப்பின் பணியாளரின் பணிகள் தருவதற்கு விளையாடிய நிறுவனத் பணியாளரின் பணியாளர் அமைவு வகையாக.

அடையும் வருடக் கணவாணத்தில்:


மறு முக்கியமானத்:

நிறுவனத் பணியாளர் பிரபேணத்தின் பணியாளர் அமையும் வருடக் கணவாணத்தில், குறுக்கு வெளிப்பாட்டில் பிரபேணத்தின் பணியாளர் அமைந்துவிட்டது.

உள்ளிட்ட நிறுவனத் பணியாளரின் பணியாளர் இந்திய கொண்டட்டில் பிரபேணத்தின் பணியாளர் அமைந்து விளையாட வேண்டிய வாழ்க்கைகளை அமைவிருக்கின்றது. நிறுவனத் பணியாளர் கொண்டட்டில் பிரபேணத்தின் பணியாளரின் பணிகளை அமைதுவிருக்கின்றது. இந்திய பொருளாதார வெளிப்பாட்டில் பிரபேணத்தின் பணியாளர் அமைந்து விளையாட வேண்டிய வாழ்க்கைகளை அமைது வேண்டும். இந்திய பொருளாதார வெளிப்பாட்டில் பிரபேணத்தின் பணியாளர் அமைந்து விளையாட வேண்டும். இந்திய பொருளாதாரத் தொடர்பு( IEC) நிறுவனத் பணியாளர் பிரபேணத்தின் பணியாளரின் பணிகளை அமைது வேண்டும்.
INFORMED WRITTEN CONSENT FORM

I ……………………exercising my free power of choice, hereby give my consent to be included as a subject in the diagnostic trial entitled “A Study on Neerkkuri Neikkuri Diagnostic Methodology in Kalladaippu-Renal calculi”. I may be asked to give urine and blood samples during the study.

I have been informed to about the study to my satisfaction by the investigator about the purpose of this trial, the nature of study and the laboratory investigations. I also give my consent to publish my urine sample photographs in scientific conferences and reputed scientific journals for the betterment of clinical research.

I am also aware of my right to opt out of the trial at any time during the course of the study without having to give the reasons for doing so.

Name of the volunteer:

Signature / Thumb impression of the volunteer:

Signature of investigator:

Date: Signature of Lecturer
தினித் நிறுத்தம் விளக்கம், செப்பல்-47.

வேளாட விளக்க

கல்மயக்கும் சிதையும் முன்னணி புரட்சியாளர்

பதிப்பு எண்-32103207 (2011-2013)

வீழ்த்தல் படம்

ஆண்டு வாரன் சாலைக் குடும்பத்திற்கு

இந்த தினித் நிறுத்தம் தேவாரபுரம் நெண்குறித் தொடர்பில் பிரித்தல் வகைக் குறித்து பொதுமக்களுடைய உணர்ச்சிக்கு வழி செய்தறிக்கொள்ளும்.

வேளாட விளக்கம்:

கல்விக்கோட்டம்:

சீரம்:

வீழ்த்தல் வாரன்:

சீரம்:

கல்விக்கோட்டம்:

சீரம்:
DEEPAM SCAN CENTRE

(A Unit of Deepam Hospital Ltd)
Deepam Kidney Stone Centre & Urology Clinic

Pt. Name: Mr. BALAMURUGAN    Age: 27/M    Date: 01/08/2012

Ref Dr: Dr. J. Raman, MS., M.Ch,

REALTIME 2D ULTRASONOGRAPHY OF KUB

RIGHT KIDNEY       Right kidney measures 9.1 x 5.2 cm.
Normal cortical echos. Cortico medullary differentiation maintained.

Pelvi calyceal system and ureter appears dilated due to a 9.3 mm calculus in the mid ureter. Multiple calculi noted in all the calyces, largest measuring 4.0 mm in the mid polar calyx.

LEFT KIDNEY        Left kidney measures 10.6 x 5.9 cm.
Normal cortical echos. Cortico medullary differentiation maintained.

Pelvi calyceal system and ureter appears normal. Multiple calculi noted in all the calyces, largest measuring 3.0 mm in the lower polar calyx.

BLADDER            Bladder wall appears normal in contour and thickness.

No e/o any abnormal intraluminal echos.

PROSTATE           Measures 3.8 x 3.2 x 2.8 cm, Volume = 15.3 cc. Seminal vesicles normal.

IMPRESSION

* BILATERAL RENAL CALYCEAL CALCULI.  
* RIGHT MID URETERIC CALCULUS CAUSING HYDROURETONEPHROSIS (MODERATE).

Dr. Shasidaran.S, MBBS, DMRD.
( CONSULTANT RADIOLOGIST )
URINARY BLADDER

The Urinary bladder is adequately distended. No calculus / mass seen within. The wall appears normal.

PROSTATE

The prostate is normal in size, shape and parenchymal echoes. No focal lesion seen. The prostate measures 2.5 x 2.5 x 2.6cm (volume ~12.8 cc). The seminal vesicles are normal and show no cyst.

There is no evidence of free fluid in the abdomen and pelvis.

Aorta and IVC appear normal. Retro peritoneum appears normal.

IMPRESSION:

- RIGHT RENAL CALCULUS
- NORMAL SONOGRAPHIC STUDY OF REST OF THE ABDOMINAL AND PELVIC ORGANS

Please correlate

DR. P. BHASKAR, MBBS. Sonologist

Get Well Soon
USG – ABDOMEN & PELVIS

LIVER
The liver is normal in size, shape and shows normal parenchymal echoes. No focal or diffuse lesion seen. Both intra and extra hepatic biliary radicals appear normal. The Portal vein is of normal caliber. The common bile duct is normal in size. No CBD calculus seen.

GALL BLADDER
The gall bladder is adequately distended. Wall thickness is normal. No calculus seen.

PANCREAS
Normal in size, shape and echotexture. No focal or diffuse lesion seen. No dilatation of pancreatic duct seen.

SPLEEN
Normal in size and shows homogeneous normal echo texture. No focal lesion seen.

KIDNEYS
Right kidney is normal in size and shape. The cortical thickness and echogenicity appear normal. The pelvicalyceal system is not dilated. Evidence of calculus measuring 3.8mm noted mid pole.

Left kidney is normal in size and shape. The cortical thickness and echogenicity appear normal. The pelvicalyceal system is not dilated. No calculus / mass seen.

Measurement: Rt. Kidney 9.0 x 3.5 cm
Lt. Kidney 11.3 x 4.7 cm

Get Well Soon
Name: Dr. S. Sivakumar
Reg No: 32103207
Title: "A Study on Neerukuri Naikkuri Diagnostic Methodology in Kalladaippu - Renal Calculi"

DECIISION

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Signed: (Dr. K. Manickavasakam)
Member Secretary

(Please print name) Dr. V. Subramanian

(Please declare as appropriate, Chairperson, Secretary)

Modifications needed

Modification given to candidate

The research proponent is hereby informed that the Institutional Ethics Committee will require the following:

1. All adverse drug reactions (ADRs) that are both serious and unexpected to be reported promptly to the IEC within 7 working days
2. The progress report to be submitted to the IEC at least annually
3. Upon completion of the study, a final study status report needs to be submitted to the IEC
From 27th August 2012 to 31st August 2012

The Tamil Nadu Dr. M.G.R. Medical University

organized by the Department of Siddha

for AYUSH Post-Graduates & Researchers

on "Research Methodology & Biostatistics"

for participating as a Resource Person / Delegate in the XXX Workshop

This Certificate is awarded to Mr. M.S. SINGaravelu

69, Anna Salai, Guindy, Chennai 600 032

The Tamil Nadu Dr. M.G.R. Medical University
Liver:
Is normal in size and shows uniform echo texture. Intrahepatic biliary radicles, portal vein, hepatic veins and IVC appear normal.

Gall Bladder:
Is adequately distended. No calculus or internal echoes are seen. Wall thickness is normal. The CBD is not dilated.

Pancreas:
Appears normal in size and shows uniform echo texture. The pancreatic duct is normal. No calcifications are seen.

Spleen:
Appears normal in size and it shows uniform echo texture.

Kidneys:
RT.Kidney measures 9.2 x 4.3 cms.
LT.Kidney measures 9.0 x 5.0 cms.
A calculus measures 5.3 mm noted in the left kidney.
Renal cortical echoes and Cortico medullary differentiation are normal on both sides. Pelvicalyceal system on both sides appears normal.

Bladder:
Is normal in contour. No intraluminal echoes are seen. No calculus or diverticulum is seen.
Name: Mr. Sundaram
Age: 32 Y/M
Ref. By.: National Institute of Siddha.

Date: 25.11.2012
ID/AS/TBM/USG/ 5273

Ultrasound Abdomen

Prostate:
Appears normal in size and it shows uniform echo texture.
Measures 2.6 x 3.1 x 2.5 cms. Volume-11.2 cc.

RIF and Retroperitoneum:
Appear normal. No retroperitoneal lymphadenopathy.
The psoas appears normal. No free fluid.

Impression:

> Left renal calculus.

Dr. Viswanth MD,
Radiologist.
WHOLE ABDOMEN

Real time 2D ultrasonography of Whole Abdomen.

Liver :
Liver appears normal in size and echotexture. 
No evidence of focal parenchymal lesions. 
Hepatic veins and portal vein appear normal. 
Portal vein measures ~ 9.72 mm. 
No evidence of intra / extra hepatic biliary dilatation.

Gall Bladder :
Gall bladder is distended and appears normal in contour. No calculi seen in the gall bladder lumen. No evidence of abnormal wall thickening.

Pancreas :
Appears normal in echo texture. Main pancreatic duct not dilated. No focal parenchymal lesions noted.

Spleen :
Appears normal in size. 
It shows homogenous echoes.

Aorta, IVC and retroperitoneum:
Aorta and IVC are normal in calibre. 
No evidence paraaortic adenopathy.

Peritoneum :
No free fluid in the peritoneal cavity

Right kidney :
Measures 8.2 x 4.1 cms, normal in size, site and echo texture. Cortico medullary differentiation maintained. Pelvicalyceal system not dilated. No calculi / focal parenchymal lesion noted.

Quality is our Image
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<th>Mrs. PECHIAMMAL. S</th>
<th>Age/Sex</th>
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<td>Referred by</td>
<td>Dr. MAHALAKSHMI.B MBBS.DGO.</td>
<td>Visit Date</td>
<td>09/08/2012</td>
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**Left kidney:**
- Measures 8.4 x 3.7 cms, normal in size, site and echo texture. Cortico medullary differentiation maintained. Pelvicalyceal system not dilated. No focal parenchymal lesion noted. **A small calculus measuring ~ 5 mm seen in upper calyx.**

**Urinary Bladder:**
- Appears normal in contour. There is no evidence of abnormal intra luminal echoes. Wall thickness is within normal limits.

**Uterus:**
- Anteverted and normal size
- It measures 6.1 x 4.2 x 3.1 cms.
- Endometrial and myometrial echoes appear normal.

**Ovaries and adnexa:**
- Both ovaries are not visualized.

**BOTH ILIAC FOSSAE:**
- No focal fluid collections seen.

**IMPRESSION:**
- **Left renal calculus.**

DR. V. SHANKAR, MD, RD.,
CONSULTANT RADIOLOGIST.

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**Quality is our Image**

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Department of RadioDiagnosis & Imaging

UHID No: 941965
Patient Name: Mr BALAMURUGAN
Sex: Male
Age: 28 Yrs
X-Ray No: 22561
Bill No: CS333548
Bill DateTime: 17/08/2012 12:17:00
X-Ray Date: 17/08/2012
Report DateTime: 17/08/2012 12:40:52

Investigation Name: x-ray KUB

Observations:

- Both renal shadows are normal in size and position.
- Both psoas shadows are normal.
- There is radio opaque calculus at the level of L3 transverse process.
- The visualized gas shadows are normal.
- The bones of pelvis and spinal column show no significant abnormality.
- The soft tissues are normal.

Impression:

Right ureteric calculus at the level of right L3 transverse process

Finalised Signature: 
Finalised By Name: Dr. Bulabai karpagam
Signature of the Approver: 
Name of the Approver: Dr. Bulabai karpagam
WHOLE ABDOMEN

Real time 2D ultrasonography of Whole Abdomen.

Liver:
Liver appears normal in size and echotexture.
No evidence of focal parenchymal lesions.
Hepatic veins and portal vein appear normal.
No evidence of intra / extra hepatic biliary dilatation.

Gall Bladder:
Gall bladder is distended and appears normal in contour. No calculi seen in the gall bladder lumen. No evidence of abnormal wall thickening.

Pancreas:
Appears normal in echo texture. Main pancreatic duct not dilated. No focal parenchymal lesions noted.

Spleen:
Appears normal in size and measures 8.4 cms. It shows homogenous echoes.

Aorta, IVC and retroperitoneum:
Aorta and IVC are normal in calibre. No evidence paraaortic adenopathy.

Peritoneum:
No free fluid in the peritoneal cavity

Right kidney:
Measures 8.3 x 4.5 cms, normal in size, site and echo texture. Cortico medullary differentiation maintained. Pelviccalyceal system not dilated. No focal parenchymal lesion noted. Multiple calculi noted in upper (~ 4 mm), mid (~ 5 mm) and lower (~ 6 mm) poles,
Patient Name: Mr. BASKAR, K
Patient ID: 141227190
Referred by: Dr. NATIONAL INS.OF.SIDDHA
Age/Sex: 40 Years / Male
Visit No: 1
Visit Date: 26/11/2012

Left kidney:
- Measures 10.2 x 4.9 cms, normal in size, site and echotexture. Cortico medullary differentiation maintained. Pelvicalyceal system not dilated.
- No focal parenchymal lesion noted.
- Multiple calculi noted in upper (~ 5 mm), mid (~ 6 mm) and lower (~ 4 mm) poles.

Urinary Bladder:
- Appears normal in contour. There is no evidence of abnormal intra luminal echoes. Wall thickness is within normal limits.

Prostate:
- Measures 3.27 x 3.15 x 3.07 cms with a volume of 16 ml and appears normal size and in echotexture.

Both Iliac Fossae:
- No focal fluid collections seen.

Impression:
- Bilateral multiple renal calculi.

Dr. HARISH. M

Quality is our Image
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<th>Patient Name</th>
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<td>Visit Date</td>
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**Quality is our Image**
LIVER: Normal in size and echo pattern. No focal or diffuse pathology. CBD and IHB appear normal. Portal vein is normal.

GALL BLADDER: Normal in size. Wall is normal. No calculus / sludge / polyp.

PANCREAS: Normal in size & echo pattern. Pancreatic duct is not dilated. No focal / diffuse pathology.

SPLEEN: Normal in size and echo pattern.

KIDNEYS: Right kidney measures 92.4 x 50.0 mm. Cortical echoes are normal. No focal lesion. Collecting system is normal. No evidence of calculus.

Left kidney measures 94.2 x 50.4 mm. Cortical echoes are normal. No focal lesion. Two calculi each measuring 3.8 mm and 4.3 mm is noted in the interpolar region and lower pole calyces respectively. Collecting system is not dilated.

URINARY BLADDER: Distended. Wall is normal. Bladder wall thickness 3.5 mm. No abnormal intraluminal echoes.

PROSTATE: Prostate appear normal. It measures 35.0 x 28.0 x 27.8 mm. Wt 14.3 gms. No focal lesion.

PERITONEUM: No evidence of ascites.

AORTIC & IVC: Normal in calibre. No demonstrable para aortic nodes.

RIGHT ILIAC FOSSA: No ultra sonographically demonstrable pathology or tenderness.

IMPRESSION: LEFT RENAL CALCULI

DR. G. NIRMANI, MD, RD.
Consultant Radiologist

No. 7/9, Duraisamy Pillai Street, West Tambaram, Chennai - 45. Ph : 22262428, 22261473
24 HOURS EMERGENCY SERVICE • AMBULANCE SERVICE AVAILABLE ON REQUEST
USG STUDY OF WHOLE ABDOMEN

LIVER:
Liver is normal in size with uniform echotexture.
No focal alteration in echotexture.
Intrahepatic biliary radicles appears normal.
Common duct appears normal.
Portal and hepatic veins appear normal.

GALLBLADDER:
Gall bladder is adequately distended.
No abnormal intraluminal echoes.
Wall thickness appears normal.

PANCREAS:
Pancreas normal in size.
It shows uniform echotexture.

SPLEEN:
Spleen appears normal in size (~ 94 mms).
It shows uniform echotexture.

KIDNEYS:
Right kidney measures ~ 106 x 50 mms.
Left kidney measures ~ 91 x 49 mms.
Normal cortical echoes.
Cortico medullary differentiation is maintained.
Pelviccalyceal system on left side appears normal.
Pelviccalyceal system on right side appears mildly dilated, along with the entire ureter, with a 5 x 4 mm sized calculus in the terminal ureter.

RETROPERITONEUM:
Aorta appears normal in caliber I.V.C normal.
No significant retroperitoneal lymphadenopathy.
No free fluid in the peritoneal cavity.
Patient Name: Mrs. SULTHANA
Age/Sex: 52 Years / Female
Visit No: 1
Visit Date: 12/07/2012

Referred by: Dr. RAJENDRAN J BSC MBBS DLO

BLADDER:
Bladder normal in contour.
No abnormal intraluminal echoes.
Wall thickness appears normal.

PELVIC ORGANS:
Uterus anteverted and is atrophic
It measures ~ 65 x 34 x 22 mms.
Endometrial and myometrial echoes normal. ET- 3.5 mms.
Rt ovary measures ~ 24 x 8 mms.
Lt ovary measures ~ 23 x 15 mms.
Both ovaries appear normal in echotexture and are atrophic.
No free fluid in cul-de-sac.

IMPRESSION:
* Right hydroureteronephrosis due to a terminal ureteric calculus.
* Rest of the solid upper abdominal organs are normal
* Atrophic pelvic organs.

Dr. R. KANAGASABAI, MD, DMRD,
Consultant - Radiologist

Quality is our Image